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ABSTRACT

This longitudinal study was conducted to determine what factors present at the sixth grade level would cause a student to be dropout prone. The specific objectives were: 1.) to ascertain what characteristics are associated with the future school dropout; 2.) to develop a regression equation to assist in the identification of potential future dropouts; 3.) to determine the extent to which school personnel can accurately identify dropout prone sixth grade students; and 4.) to examine the stability of aptitudinal, achievemental, and residential data for both dropout and non-dropout students. A sample was drawn of 2400 sixth grade students. Study results identified such predictive variables as attendance record, citizenship average, academic GPA, as well as teacher's estimate of the pupil's feeling toward authority, assumption of responsibility, playground behavior, and perception of abstract concepts. Findings also suggest that school personnel's informal estimate of dropout potential may be useful in identifying those most and least likely to drop out. References are included. (Author/SES)

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THE ORANGE COUNTY DROPOUT PREDICTION STUDY

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FOREWORD

Students have been leaving school before graduation since schools first opened. At the turn of the century only fifty per cent of eligible school-age youth actually enrolled in secondary schools and only fifteen per cent received a diploma. The 1960 census indicated that ninety per cent of the eligible school-age population was in school and only sixty-seven per cent actually received high school diplomas. During 1972 it is estimated that dropouts will number 850,000 in the United States.

There was a time when the labor market readily absorbed unskilled applicants. However, today's highly technical job market demands more precise entry skills. Additionally, labor laws now restrict certain occupations to a minimum age of eighteen years. Labor unions no longer will take just any applicant and their apprenticeship programs allow for fewer participants. Industries and local governments have established the high school diploma as a minimum requirement. The result is that there are relatively few occupations now open to the non-high-school graduate.

The public school system of California provides continuation high schools, opportunity classes, and educationally handicapped programs as incentives to help students in school. Such programs are also offered in Orange County where the dropout rate is estimated to be five per cent countywide.

This report concludes a six year longitudinal study of students that dropped out of school in Orange County. It was initiated with the hope that reliable indicators might be identified that could serve to reduce the beginning of dropouts through an improved means of prevention. The findings and recommendations from this study are herewith made available for use by all educators and citizens concerned with the problem of school dropouts.

Robert Peterson

Robert Peterson, Ed.D.
Superintendent
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BACKGROUND

In 1961, under the leadership of the Orange County Department of Education, a committee was formed to investigate the extent of the dropout problem in Orange County Schools. The Orange County Superintendent of Schools appointed Ralph C. Hickman, Guidance Consultant, Orange County Department of Education, to direct the efforts. After the first preliminary report, the County Superintendent appointed Thomas F. Kelly, Coordinator of Youth Services, to assume responsibility for the committee and to complete a survey of Orange County School dropouts.

In 1962, the Dropout Committee (Appendix A), which consisted of representives of school districts in Orange County, set as its purpose to determine the extent of the school dropout problem in Orange County. A data collection instrument (Appendix B) was designed to request detailed information about the dropout's familial background and environment, reasons for dropping out, school records, and data about the school. For purposes of the questionaire, the dropout was defined as "A student who enters school at ninth grade or above and who leaves without a valid transfer or completion of attendance through the twelve grades" (Kelly :3).

During 1963, the dropout instrument was completed by secondary school counselors conferring with all students leaving school prior to graduation from January 1, 1963 to

December 31, 1963. The results of this 1963 survey indicated that 17% of students enrolled in grades 9 through 12 left before graduation. This compared with a national average of 33 1/3% and a state average of 29% during the same period. Of those dropping out in Orange County there was almost an equal number of boys (54%) and girls (46%). Most left during the 10th and 11th grade with the main reasons given as lack of interest, poor attendance and academic failure (Kelly :16).

The Dropout Committee believed that the 1963 dropout study would be more comprehensive if the dropout's opinion was added. These student opinion data would (1) validate the schools' reports and (2) provide information on possible earlier identification of potential dropouts and suggest possible remediation measures that could have been applied to help these students stay in school (Kelly :6). In the fall of 1963, a sampling of students leaving during the spring semester of 1963 was completed (Appendix C). Of the students responding, 63% stated it was their idea to leave school, while 21% indicated they left at the school's request. Of those responding "What might have encouraged you to stay in school?" the largest number responded in categories (1) "More individual help needed from teachers and counselors" and (2) "A part-time job" (Kelly :52).

Based upon the data gathered in these county-wide dropout surveys, the Dropout Committee recommended to the County Superintendent of Schools in 1964 that an effort be made

immediately to identify the potential dropout at an earlier age. They further recommended that the new effort be broad in scope, sample a large number of students and be longitudinal.

THE PROBLEM

As a result of these recommendations, in 1965, the Orange County Department of Education pioneered a county-wide study to determine what factors were present at the sixth grade level which would cause a student to be drop-out prone. Two hundred elementary schools were involved in this study. Elementary school principals, teachers, and school nurses collectively identified four students (2 boys and 2 girls) they believed would drop out of school - "Most Likely", four students (2 boys and 2 girls) they believed would not drop out of school - "Least Likely", and four students (2 boys and 2 girls) chosen at "Random". Thus a total of 2,400 students representing sixteen elementary and unified school districts were selected as subjects for study. These students graduated in June 1971, if their educational progress was routine.

The two general objectives of the 1965 Orange County Predictive Dropout Study were to (1) determine at the sixth grade level what factors cause a student to be dropout prone and (2) can elementary school teachers and principals identify potential dropouts?

The specific objectives of the study were to:

1. Ascertain what factors are associated with the future school dropout;

2. Develop a regression equation to assist in the identification of students having the greatest likelihood of being future dropouts;

3. Determine the extent to which school personnel can accurately identify the dropout prone sixth grade student six years prior to his actual departure;

4. Examine the stability of aptitudinal, achievemental, and residential data for both dropout and non-dropout student.

PROCEDURES

Subjects: Each school team (principal, teacher, nurse) of each of the 200 elementary schools participating in the project selected from their school's sixth graders (1) four students (2 boys and 2 girls) who, in their professional judgement, were "Most Likely" to become school dropouts, (2) four students (2 boys and 2 girls) who they felt were "Least Likely" to dropout, and (3) four students (2 boys and 2 girls) at "Random" from the sixth graders in their school to provide base data. This procedure generates a sample of twelve students from each of the 200 schools for a total of 2,400 students.

Collection and Treatment of Data: A three-part questionaire was completed for each pupil in 1965 (Appendix D). Part I collected information generally found in the pupil's cumulative folder, and was completed by the principal or his designee. Part II collected health information provided by the school nurse. Part III solicited

a bipolar continuum teachers' and principals' estimates of behavioral traits and familial background of each student in the sample population.

A letter (Appendix D) was placed in each student's cumulative folder at the end of his 6th grade indicating that he was part of a study and requesting that the school notify the Orange County Department of Education if he left that school. Thus mobility information became available to add to the possible characteristics to be analyzed in the final data.

A check on the location of the sample population was made in 1968 by C. D. Johnson, Coordinator of Guidance Services. At that time, 2,139 students were located. The students were to have graduated in June 1971.

The Orange County Department of Education culmination of this study began in March 1972, under the direction of C. D. Johnson, Guidance Coordinator, with all schools being requested to forward to the Orange County Department of Education a copy of the student's transcript including standardized test data. The information was then key punched onto cards and processed by computers.

FINDINGS

THE SAMPLE

Sample Mortality. The original sample of 2,400 sixth-grade pupils was composed of 800 randomly selected students, 800 pupils deemed most likely to become dropouts, and 800 thought least likely to become dropouts. Due to the mobility rate of Orange County residents, many of the participants in the inception of this study became residents of other districts, counties, and also of other states. Although an effort was made to trace each of the original participants and to obtain their educational record, it was impossible in many cases. As of June 1, 1972 the educational records of 532 or approximately 66% of the original 800 individuals of the "least" group was available. For the "most" group the percentage with complete records was less adequate: 362 of the original 800 for 45%. Complete records for 488 of the original 800 in the "random" group computes to be a percentage rate of 61%. In tabular form these data are as follows:

TABLE I

A Comparison of the Original Sample and the Final Sample for the Orange County Dropout Prediction Study

Group	Number in Original Sample	Number with Known Educational Records	Percent
Least	800	532	66.5%
Most	800	362	45.3%
Random	800	488	61.0%
Total	2,400	1,382	57.6%

From these data it is obvious that to remain in contact with students over a period of 6 - 7 years is a difficult task. A striking difference in the percentages with complete educational records also exists: contact with the "most" group students is more difficult than with the other groups. It seems likely that many of these students terminated their school experience and became lost to this study.

The final sample therefore is comprised of approximately 1,400 individuals. Although regretable, sample attrition is unavoidable to some extent with such longitudinal research designs. It seems likely that the 1,000 original participants who became lost to this study would have had educational performance records inferior to the 1,400 included in this report. If this is true, then these reports and statistics will be positively biased to some unknown extent when generalizing to the Orange County population.

Background Information Concerning the Participants. Data on the birthplace, ethnicity, home language, and religious preference were sought for the individuals in this study. Except for the matter of religious preference the teacher was able to provide these data. Table 2 presents these results for each of the three sample groups.

TABLE 2

Some Descriptive Background Information on the Participants of the Orange County Dropout Prediction Study

	Most	Least	Random
1. Birthplace			
a. Orange County	20%	25%	18%
b. Other California County	43%	38%	39%
c. Other State	32%	31%	37%
d. Other Country	5%	6%	5%
2. Ethnic Group			
a. Anglo	77%	89%	90%
b. Mexican-American	20%	7%	8%
c. Negro	0%	0%	0%
4. Oriental	0%	2%	1%
5. Other	3%	2%	1%
3. Religious Preference	Generally Unknown		
4. Primary Language At Home			
a. English	94%	93%	95%
b. Spanish	6%	6%	5%
c. Other	0%	1%	0%

TABLE 3

Some Facets of the Grammar School Educational Histories of the Participants in the Orange County Dropout Prediction Study

	Most	Least	Random
1. Initial School Experience			
a. Preschool	8%	2%	4%
b. Kindergarten	80%	82%	86%
c. First Grade	12%	16%	10%
2. Mode of Transportation			
a. Bus	17%	19%	18%
b. Bike	17%	22%	19%
c. Walk	64%	56%	62%
d. Car	2%	3%	1%
3. Retentions	18%	2%	6%
4. Grade Retained			
a. First	33%	0%	38%
b. Second	16%	71%	5%
c. Third	11%	14%	24%
d. Fourth	10%	14%	10%
e. Fifty	20%	0%	19%
f. Sixth	10%	0%	4%
5. Double Promotions	1%	2%	1%
6. Attendance in Parochial School	5%	6%	3%
7. Attendance in Private School	3%	4%	2%

An informal comparison between the three groups in terms of these background factors reveal that the groups were generally similar in the percentages falling in the various categories of the variable. The "random" group closely approximated both the "least" group and the "most" group in place of birth, ethnicity, and home language.

Some Facets of the Educational History of the Participants. Several matters in the educational histories of the participants were of interest to those who designed and initiated this study. Among these items of interest were the initial school experience of the pupil, mode of transportation to school, the number of retentions and the grade in which these occurred and the number of double promotions. In addition to this list, other information from the high school transcripts was gathered: types of school attended, number of fine arts courses completed (drama, music, art, choir, speech, band, etc.), the number of vocational courses completed (shops, shorthand, typing, etc.), the number of summer sessions completed, number of semesters completed, and, of course, whether or not the student graduated from high school. The tabulation of these data by sample groups follows:

TABLE 4

Some Facets of the High School Educational Histories of the Participants in the Orange County Dropout Prediction Study

	LEAST		MOST		RANDOM	
1. Number of Fine Arts Courses Completed	N	%	N	%	N	%
a. 1 - 3	202	38%	163	45%	184	38%
b. 4 - 6	95	18%	79	22%	114	24%
c. 7 - 9	38	7%	31	9%	39	8%
d. 10 - 12	20	4%	8	2%	14	3%
e. 13+	6	1%	1	0%	5	1%
2. Number of Vocational Courses Completed						
a. 1 - 3	238	45%	148	41%	186	39%
b. 4 - 6	141	26%	94	26%	128	27%
c. 7 - 9	54	10%	51	14%	70	15%
d. 10 - 12	27	5%	29	7%	40	8%
e. 13+	18	4%	19	5%	20	4%
3. Number of Summer School Sessions Completed						
a. One	81	15%	42	14%	79	16%
b. Two	50	9%	30	8%	40	8%
c. Three	18	3%	7	2%	14	3%
d. Four	10	2%	3	1%	6	1%
e. Five	1	0%	1	0%	0	0%
4. Participation In:						
a. Continuation School	4	1%	24	4%	15	3%
b. Adult School	8	1%	26	4%	13	3%
c. Probation or Juvenile Hall	2	0%	2	1%	1	0%
d. Private or Parochial School	3	1%	15	3%	3	1%
5. Number of Semesters Completed						
a. 1 - 2	25	4%	70	17%	35	6%
b. 3 - 4	11	2%	54	14%	21	4%
c. 5 - 6	26	4%	66	16%	43	8%
d. 7 - 8	522	90%	223	53%	427	81%
6. Terminal Information						
a. Graduated	524	75%	186	31%	416	64%
b. Dropped	39	6%	176	30%	72	11%
c. Lost	14	2%	46	7%	22	3%
d. Nothing	110	16%	164	26%	104	16%
e. Deceased	0	0%	2	0%	1	0%
f. Still Attending	0	0%	2	0%	3	0%
g. Incomplete	15	2%	33	5%	30	5%

Slight discrepancies will be noted when a comparison of Table I total numbers and Table 2 totals is made. The reconciliation is that Table I includes participants who had data cards for both the grade school and high school information. Table 4 gives the total number (N) for cards containing high school information. A few high school data cards did not have matching identification numbers to data cards containing grade school information, and vice versa. It seems likely that in the transcription of the I.D. numbers, in the reading and key punching of the numbers, etc., human error was involved to a small extent. In this respect, the present study is in the same class as all other human endeavors.

A perusal of Table 3 reveals that the sample groups approximated each other in each of the items except in the number of retentions. The magnitude of the proportions may be instructive to the interested reader.

Table 4 presents some curricular information as well as the last information that was available concerning high school progress.

These data concerning the sample participants, their background, and school experiences are presented to give a better understanding of the individuals involved, and to enhance the interpretation of the findings which are to follow.

STABILITY OF APTITUDINAL, ACHIEVEMENTAL, DEPORTMENT, AND RESIDENTIAL DATA

Aptitudinal Stability. Aptitude measures derived from the California Test of Mental Maturity were obtained when the participants of this study were in the sixth grade. Approximately six years later, Lorge-Thorndike I.Q.'s (verbal) were assessed. These measured were submitted to a correlational analysis to yield some information concerning the stability of aptitude scores over a period of six years. The matrix of intercorrelations is presented in the following table:

TABLE 5

Intercorrelations Between the CTMM and Lorge-Thorndike Measures of Aptitude for the Participants of the Orange County Dropout Prediction Study

	CTMM-(L)	CTMM-(NL)	CTMM-(Total)	L-T (Verbal)
CTMM-(L)	1.00	.48	.79	.57
CTMM-(NL)		1.00	.85	.26
CTMM-(Total)			1.00	.46
L-T (Verbal)				1.00

The Pearson correlation coefficient of 0.57 between the CTMM-L and the Lorge-Thorndike verbal scores appears to reflect only moderate stability of the verbal aspect of intelligence. The value of the coefficient is deflated to some extent because the two instruments do not measure precisely the same areas of verbal ability. Lower correlations are obtained when I.Q.'s from different tests are used. A more realistic estimate of aptitudinal stability would result if the same instrument is employed for both administrations. However, even if the coefficient could be viewed higher, for example, r = .70, this still indicates that there are large differences for some of the individuals. These results are confirmatory of many studies showing the inconstancy of the I.Q. (*1). Hopefully, today educators are sufficiently informed to make use of such psychometric data with due cognizance of their limitations.

There is only a slight relationship between the verbal and non-verbal estimates of aptitude. Again this is consistent with the results from other studies in other areas (*1). After the approximately 6 year span, there was almost no correlation between the CTMM-(Non-verbal) and the L-T-(Verbal), r = 0.26.

*1 - *See chapter 14, especially pages 337 - ff, of* Educational and Psychological Measurement and Evaluation, *by Stanley and Hopkins, 1972*

A table of the intercorrelations of the I.Q. measure and academic grade-point averages reveal interesting relationships. Table 6 presents these data.

These data indicate that the verbal I.Q. measures correlate higher with GPA than do the non-verbal ones, however, these coefficients are generally quite low. Obviously many factors other than I.Q. are involved in the ability to obtain grades in school.

TABLE 6

Intercorrelations Between Measures of I.Q. and Grade-Point Averages for the Orange County Dropout Prediction Study

	CTMM-I.Q. Non-Lang.	GPA Reading	GPA grade school	L-T (verbal)	GPA high school
CTMM I.Q.-(L)	.48	.57	.55	.57	.43
CTMM I.Q.-(NL)		.32	.38	.26	.25
GPA-Reading (grade school)			.91	.45	.42
GPA-Academic (grade school)				.41	.45
L-T I.Q. (Verbal)					.38

Stability of Achievement Measures

Language. Several measures in the general area of language were obtained over the years of schooling for the participants, including: achievement tests, grades for grammar school and grades in high school. Table 7 presents the correlation matrix for these data. In order to compress the information and allow its presentation the variables are listed and defined numerically, as follows:

Variable

1 = Mechanics of English (C.A.T.)
2 = Spelling (C.A.T.)
3 = I.Q. Language (CTMM)
4 = GPA-Language (Grade School)
5 = Language Grade (Grade 1)
6 = Language Grade (Grade 2)
7 = Language Grade (Grade 3)
8 = Language Grade (Grade 4)
9 = Language Grade (Grade 5)
10 = Language Grade (Grade 6)
11 = English Grade (Grade 9a)
12 = English Grade (Grade 9b)
13 = English Grade (Grade 10a)
14 = English Grade (Grade 10b)
15 = English Grade (Grade 11a)
16 = English Grade (Grade 11b)
17 = English Grade (Grade 12a)
18 = English Grade (Grade 12b)
19 = I.Q.-Verbal (Lorge-Thorndike)
20 = English (IOWA test)
21 = English GPA (High School)

TABLE 7

Correlation Matrix for Measures of Achievement in Language and Related Measures for the Participants of the Orange County Dropout Prediction Study

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1		.68	.48	.54	.28	.41	.45	.49	.50	.41	.31	.28	.28	.27	.27	.26	.29	.30	.24	.41	.37
2	.68		.41	.46	.31	.34	.43	.40	.43	.37	.27	.23	.20	.23	.22	.21	.26	.35	.22	.34	.31
3	.48	.4		.50	.37	.43	.44	.39	.42	.43	.42	.38	.37	.34	.37	.36	.35	.34	.57	.66	.46
4	.54	.46	.50		.69	.77	.85	.83	.84	.86	.43	.39	.37	.38	.34	.31	.34	.38	.37	.60	.47
5	.28	.31	.37	.69		.57	.50	.37	.39	.46	.23	.19	.19	.19	.22	.17	.24	.17	.30	.44	.26
6	.41	.34	.43	.77	.57		.64	.47	.46	.48	.37	.29	.34	.26	.35	.23	.33	.39	.40	.49	.40
7	.45	.43	.44	.85	.50	.64		.64	.56	.56	.39	.36	.35	.34	.35	.32	.26	.43	.29	.48	.43
8	.49	.40	.39	.83	.37	.47	.64		.61	.55	.41	.43	.37	.35	.38	.31	.30	.40	.24	.49	.45
9	.50	.43	.42	.84	.39	.46	.56	.61		.64	.42	.38	.32	.34	.28	.24	.25	.37	.29	.49	.42
10	.41	.37	.43	.86	.46	.48	.56	.55	.64		.39	.37	.38	.37	.33	.36	.41	.37	.34	.57	.47
11	.31	.27	.42	.43	.23	.37	.39	.41	.42	.39		.70	.62	.47	.48	.40	.42	.37	.43	.58	.79
12	.28	.23	.38	.39	.17	.29	.36	.43	.38	.37	.70		.59	.51	.54	.46	.46	.46	.35	.51	.80
13	.28	.20	.37	.37	.19	.34	.35	.37	.32	.38	.62	.59		.63	.51	.51	.49	.60	.41	.48	.82
14	.27	.23	.34	.38	.19	.27	.34	.35	.34	.37	.47	.51	.63		.51	.52	.41	.60	.37	.50	.77
15	.27	.22	.37	.34	.22	.35	.35	.38	.28	.33	.48	.54	.5	.51		.55	.55	.60	.42	.48	.77
16	.26	.21	.36	.31	.17	.23	.32	.31	.24	.36	.40	.46	.51	.52	.55		.51	.45	.35	.47	.74
17	.29	.26	.35	.34	.24	.33	.26	.30	.25	.41	.42	.46	.49	.41	.55	.51		.61	.39	.38	.74
18	.30	.35	.34	.38	.17	.39	.43	.40	.37	.37	.37	.46	.50	.50	.50	.45	.61		.43	.51	.74
19	.24	.22	.57	.37	.30	.40	.29	.24	.29	.34	.43	.35	.41	.37	.42	.35	.39	.43		.57	.50
20	.41	.34	.66	.60	.44	.49	.48	.49	.49	.57	.58	.51	.48	.50	.48	.47	.38	.51	.57		.62
21	.37	.31	.46	.47	.26	.40	.43	.45	.42	.47	.79	.80	.82	.77	.77	.74	.74	.74	.50	.62	

As is evident from this table, the stability pattern for grades shows that for consecutive years there are substantial coefficients of correlation and these values become progressively smaller as the years between the measures increases. The achievement measures from grammar school tend to cluster together as do those from high school. The I.Q. measures seem to be indistinguishable from the achievement measures as the pattern of intercorrelations is studied. There seems to be a slightly stronger relationship between the Iowa test (English) and the other measures than for other vectors of correlations. The overall picture is that grade school measures in language will statistically be correlated with the high school measures but the strength of the relationship is not sufficiently strong to substantially improve prediction.

Mathematics. Several measures in the field of mathematics were obtained over the years of schooling for the participants. These measures include standardized test results, arithmetic grades in grammar school, math grades in high school, and the averages of these grades. Table 8 presents the correlation matrix for these data. Note the numeric representation of the measures presented.

Variable

1 = Arithmetic reasoning (C.A.T.)
2 = Arithmetic fundamentals (C.A.T.)
3 = I.Q.-(non-language-CTMM)
4 = GPA (arithmetic in grade school)
5 = Arithmetic grade (Grade 1)
6 = Arithmetic grade (Grade 2)
7 = Arithmetic grade (Grade 3)
8 = Arithmetic grade (Grade 4)
9 = Arithmetic grade (Grade 5)
10 = Arithmetic grade (Grade 6)
11 = Math grade (Grade 9a)
12 = Math grade (Grade 9b)
13 = Math grade (Grade 10a)
14 = Math grade (Grade 10b)
15 = Math grade (Grade 11a)
16 = Math grade (Grade 11b)
17 = Math grade (Grade 12a)
18 = Math grade (Grade 12b)
19 = Iowa Math Score
20 = GPA (High School Mathematics)

TABLE 8

Correlation Matrix for Measures of Achievement in Arithmetic
for the Participants of the Orange County Dropout Prediction Study

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1		.67	.37	.46	.39	.36	.33	.38	.40	.36	.22	.20	.32	.23	.32	.15	.20	.09	.45	.29
2	.67		.34	.47	.33	.33	.31	.43	.42	.35	.22	.20	.25	.19	.30	.20	.03	.07	.26	.28
3	.37	.34		.36	.19	.34	.33	.34	.30	.34	.17	.15	.25	.27	.19	.25	.21	.10	.39	.22
4	.46	.47	.36		.72	.75	.80	.82	.84	.85	.36	.34	.37	.31	.39	.36	.29	.27	.46	.42
5	.39	.33	.19	.72		.55	.44	.44	.38	.50	.22	.18	.28	.26	.12	.22	.41	.09	.30	.29
6	.36	.33	.34	.75	.55		.47	.42	.45	.41	.19	.17	.29	.29	.30	.29	.36	.09	.30	.27
7	.33	.31	.33	.80	.44	.57		.54	.50	.55	.30	.24	.29	.26	.46	.39	.21	.19	.32	.35
8	.38	.43	.34	.82	.44	.42	.54		.59	.60	.37	.29	.34	.31	.42	.43	.21	.19	.37	.41
9	.40	.42	.30	.84	.38	.45	.50	.59		.60	.30	.34	.38	.25	.25	.27	.15	.18	.43	.35
10	.36	.35	.34	.85	.50	.41	.55	.60	.60		.38	.31	.32	.31	.27	.38	.51	.40	.43	.43
11	.22	.22	.17	.36	.22	.19	.30	.37	.30	.38		.69	.46	.36	.37	.40	.53	.47	.46	.81
12	.20	.20	.15	.34	.18	.17	.24	.29	.34	.31	.69		.44	.36	.39	.43	.46	.42	.42	.81
13	.32	.25	.25	.37	.28	.29	.29	.34	.38	.32	.46	.44		.69	.41	.40	.32	.32	.46	.76
14	.23	.19	.27	.31	.27	.29	.31	.25	.31	.36	.36	.36	.69		.48	.44	.15	.23	.33	.73
15	.32	.30	.19	.39	.12	.30	.46	.42	.25	.27	.37	.39	.41	.48		.73	.35	.45	.45	.73
16	.15	.20	.25	.36	.22	.29	.39	.43	.27	.38	.40	.43	.40	.44	.73		.48	.50	.47	.75
17	.20	.03	.21	.29	.41	.36	.21	.21	.15	.51	.53	.46	.32	.15	.35	.48		.77	.51	.73
18	.09	.07	.10	.27	.09	.09	.19	.19	.18	.40	.47	.42	.32	.23	.45	.50	.77		.30	.69
19	.45	.26	.39	.46	.30	.30	.32	.37	.43	.43	.46	.42	.46	.33	.45	.47	.51	.30		.51
20	.29	.27	.22	.42	.29	.27	.35	.41	.35	.43	.81	.81	.76	.73	.73	.75	.73	.60	.51	

The general pattern of the math intercorrelations is that very little stability is evident in the measures of mathematics It seems that the year-by-year school marks vary markedly both in grade school and high school. Not only that but the standardized test results, AR, AF, in grade school and the Iowa math score in high school bear little relationship to the assigned grades. It raises the consideration as to whether the standardized tests are measuring different areas or with different emphases than do teacher marks.

Stability of Citizenship Marks. For each of the school years in grammar school and for the semesters in high school, a citizenship mark is usually given. Table 9 presents the intercorrelation matrix for these data. Note the numeric definition of the citizenship marks.

Variable

1 = Citizenship - grade 1
2 = Citizenship - grade 2
3 = Citizenship - grade 3
4 = Citizenship - grade 4
5 = Citizenship - grade 5
6 = Citizenship - grade 6
7 = Citizenship - grade 9a
8 = Citizenship - grade 9b
9 = Citizenship - grade 10a
10 = Citizenship - grade 10b
11 = Citizenship - grade 11a
12 = Citizenship - grade 11b
13 = Citizenship - grade 12a
14 = Citizenship - grade 12b

TABLE 9

Correlation Matrix for Measures of Citizenship Obtained in Grade School and High School

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		.01	.58	.82	.42	.00	.11	.10	.10	.10	.12	.12	.09	.09
2			.44	.38	.52	.31	.18	.19	.05	.04	.04	.04	.07	.06
3				.75	.63	.53	.10	.03	.10	.09	.17	.10	.00	.00
4					.68	.70	.05	.00	.00	.00	.00	.05	.07	.08
5						.69	.05	.04	.05	.06	.01	.04	.01	.04
6							.13	.13	.14	.11	.02	.01	.09	.11
7								.73	.56	.58	.55	.50	.50	.43
8									.59	.59	.57	.55	.44	.31
9										.68	.62	.59	.43	.45
10											.71	.69	.41	.42
11												.76	.48	.43
12													.57	.56
13														.79
14														

An examination of the coefficients of the citizenship correlation matrix reveals some interesting trends. The marks received during the years of grade school are clustered showing moderate stability, as are the marks received during the high school years. It is interesting to note that the measures in grade school are not generally related to the measures in high school. Seemingly the general pattern is that during the grade school years there is some consistency, but this bears no relationship to the high school pattern of behavior. During the intervening years between the grade school experience and the high school experience the general pattern of demeanor will undergo a change as often as it will remain constant, and thus the overall correlation coefficients are computed to be near zero. In fact the grade school average for citizenship was correlated with the high school average citizenship grade and the resulting value for the coefficient was: $r = .02$. There is no tendency for those who earn high citizenship marks in grade school to either earn high or low grades in high school. High school citizenship marks are unrelated to and cannot be predicted from grade school marks with greater than chance efficiency.

Stability of Residential Data. At the outset of this study it was planned to secure the cooperation of the county schools and also the schools of other counties and states and to keep a minute record of the number and distance of the

moves in which each participant was involved. However, it seems that this became too burdensome because of the time and effort involved, changing personnel, etc., so that the goal of an accurate mobility study was not achieved.

The only information that was actually processed was data gathered from the high school transcripts concerning the number and distance of the moves that were discernible from the transcript. These data were classified into one of four categories: within district moves, within county moves, within state moves, and out-of-state moves. The participants also were classified as to whether they graduated from high school or not. The tabulation of these data are given in Table 10.

TABLE 10

Partial Mobility Information Based on the High School Transcripts of the Participants of the Orange County Dropout Prediction Study

TYPE OF MOVE	GRADUATES	DROPOUTS
1. Within District	7%	16%
2. Within County	3%	7%
3. Within State	4%	7%
4. Out-of-State	3%	6%

These percentages were based on the totals comprising the "most" and "random" samples only. Thus the 7% means that when all graduating participants from the "most" and "random" groups were combined, 7% of the graduates had made at least one intra-district move during their high school years, as discernible from their high school transcript.

While recognizing the incomplete nature of the data, it still seems obvious that there is less residential stability in the dropouts' family than in the family of the graduate.

In the next section, an item in the principal submitted information form will be presented in concordance with the above generalization.

FACTORS ASSOCIATED WITH THE SCHOOL DROPOUT

A Profile of Differences Between the Future School Dropout and the Future High School Graduate in Grade School Measures and Trait Descriptions.

The future school dropout was compared with the future high school graduate on 243 measures and descriptive traits which were obtained while the pupils were enrolled in grade school. These measures include general information items, achievement test results, aptitude scores, attendance record, year-by-year school grades, health information and pupil trait information forms which were submitted by the pupil's sixth grade teacher and principal. The appendix contains a set of the forms that were used to secure these data.

Several of these variables statistically differentiated between the future dropout and the future graduate for the "random" sample group and/or the "most" sample group. No meaningful comparisons could be made in the "least" group due to the fact that dropouts rarely came out of this group. Tables 3 - 5 present the significant finding concerning mean differences in achievement and behavioral data between the dropout and the graduate in grade school measures for both the "most" sample and the "random" one.

TABLE 11

Grammar School Data Revealing a Significant Difference
Between Students Who Would Become School Dropouts
and Those Who Would Become High School Graduates

VARIABLE	MOST GROUP			RANDOM GROUP		
	DROPOUT MEAN	GRADUATE MEAN	T-VALUE	DROPOUT MEAN	GRADUATE MEAN	T-VALUE
1. Age in Months	148.6	146.5	2.89*	144.8	144.5	.48 (NS)**
2. Frequent Absence (1 = yes, 2 = no)	1.65	1.84	3.78*	1.95	1.94	.42 (NS)**
3. Energy level (Nurse's estimate: 1 = listless, 2 = hyperactive)	2 68	2.91	2.36*	3.03	3.01	.25 (NS)**
4. Parental Concern and/or Cooperation (1 = indifferent, 5 - diligent)	2.21	2.61	3.65*	3.36	3.16	1.49 (NS)**
5. C.A.T. Reading Vocabulary (grade placement units)	4.75	5.14	2.36*	6.27	6.41	.66 (NS)**
6. C.A.T. Reading Comprehension (grade placement units)	4.60	5.16	3.32*	6.01	6.52	2.53*
7. C.A.T. Mechanics of English (grade placement units)	4.82	5.25	2.58*	6.11	6.56	2.24*

** A t-value = 1.97 is significant at the .05 level of significance*
*** NS indicates the t-value was not statistically significant*

TABLE 11 (continued)

VARIABLE	MOST GROUP DROPOUT MEAN	MOST GROUP GRADUATE MEAN	MOST GROUP T-VALUE	RANDOM GROUP DROPOUT MEAN	RANDOM GROUP GRADUATE MEAN	RANDOM GROUP T-VALUE
17. Reading - Grade 2	1.71	1.89	1.39 (NS)**	2.22	2.61	2.06*
18. Reading - Grade 3	1.69	2.01	2.88*	2.10	2.68	3.75*
19. Language - Grade 3	1.70	1.93	2.10*	2.10	2.64	3.55*
20. Reading - Grade 4	1.67	1.91	2.29*	2.27	2.74	3.38*
21. Language - Grade 4	1.81	1.92	1.09 (NS)**	2.20	2.77	4.25*
22. Arithmetic - Grade 4	1.72	1.90	1.61 (NS)**	2.28	2.73	3.15*
23. Citizenship - Grade 4	1.67	1.80	1.59 (NS)**	1.93	2.00	2.24*
24. Reading - Grade 5	1.54	1.78	2.65*	2.35	2.69	2.73*
25. Language - Grade 5	1.66	1.82	1.81 (NS)**	2.41	2.70	2.38*
26. Arithmetic - Grade 5	1.66	1.84	1.85 (NS)**	2.35	2.62	2.08*
27. Citizenship - Grade 5	1.57	1.71	1.97*	1.91	1.97	1.38 (NS)**
28. Reading - Grade 6	1.50	1.64	1.49 (NS)**	2.43	2.68	2.03*
29. Language - Grade 6	1.54	1.72	2.11*	2.30	2.65	2.96*
30. Arithmetic - Grade 6	1.53	1.66	1.26 (NS)**	2.14	2.66	3.99*
31. Citizenship - Grade 6	1.54	1.68	2.02*	1.84	1.93	2.03*

* *A t-value 1.97 is statistically significant at the .05 level*
** *NS indicates the t-value was not stutistically significant at the .05 level*

TABLE 11 (continued)

VARIABLE	MOST GROUP DROPOUT MEAN	MOST GROUP GRADUATE MEAN	MOST GROUP T-VALUE	RANDOM GROUP DROPOUT MEAN	RANDOM GROUP GRADUATE MEAN	RANDOM GROUP T-VALUE
8. C.A.T. Spelling (grade placement units)	4.80	5.32	2.83*	5.97	6.32	1.50 (NS)**
9. C.T.M.M.-I.Q. Language	91.2	95.3	2.26*	104.6	110.1	2.44*
10. C.T.M.M.-I.Q. Non-Language	92.8	98.0	2.45*	103.0	110.1	2.69*
11. C.T.M.M.-I.Q. Total	92.3	96.4	2.41*	103.6	110.4	3.18*
12. Reading G.P.A. (grade school average)	1.58	1.78	3.06*	2.39	2.68	2.92*
13. Language G.P.A. (grade school average)	1.65	1.82	2.70*	2.35	2.66	3.48*
14. Arithmetic G.P.A. (grade school average)	1.70	1.82	1.79 (NS)**	2.35	2.67	3.31*
15. Citizenship G.P.A. (grade school average)	1.56	1.71	2.65*	1.87	1.96	2.58*
16. Academic G.P.A. (grade school average)	1.58	1.78	3.11*	2.34	2.65	3.62*

* *A t-value 1.97 is significant at the .05 level of significance*
** *NS indicates the t-value was not statistically significant*

From a perusal of Table 11 it can be noted that in 15 of the 31 items listed, there is a significant difference for both the "most" and the "random" groups. However, in terms of actual units the means do not differ greatly. For large samples, a small difference in the means is statistically significant but may be of little practical significance. For example, item number 6 in Table 3 gives the information on C.A.T. reading comprehension. For both the "most" and the "random" groups there is a significant difference in the means of the dropout and those of the graduate and the difference in this case is sizeable. However, notice that the mean RC score for the "most" graduates is 5.16 and the mean RC score for the "random" dropout is 6.01. In other words, within each sample group there is approximately a .5 difference between the dropout and the graduate, but between the "random" dropout and the "most" graduate there is approximately a .9 difference in favor of the dropout. The consequence of such a condition requires that one be exceedingly cautious in interpreting scores and to refrain from reading into the results more than is justified. Obviously a pattern of performance would be more meaningful than an isolated score in tentatively assessing probabilities concerning potential dropouts.

A glance at Table 11 reveals that the "most" group differs much more from the "random" group than does the dropout from the graduate. Without question, the "random"

group must be the basis for any comparisons which are to be made. Due to the method of selecting both the "most" and the "least" sample, each group is highly atypical and could only represent pupils in either extreme. After all, from the sixth grade school population, there were only two who were selected as "most" likely to drop. The selected ones probably had distinguished themselves many times and in many ways and therefore are the most unrepresentative individuals that could be assembled. Although one would not generalize on the basis of the "most" group individuals he could however, profit from an awareness of the measures and traits which are associated with these pupils.

Probably, many of the 31 variables listed in Tables 3 - 5 which distinguish between the dropout and the graduate, comes as no real surprise to the experienced educator. Consistently the graduates were superior in measures of achievement and citizenship. The health data (vision, hearing, speech, handicapped classification, etc.) did not differentiate between the dropout and the graduate. Likewise, the previous educational experience, nationality or language, was unrelated to graduation status. It is interesting, however, that within the "most" group, even though comprised of the most deviant individuals, there were many significant differences between the dropout and the graduate. An interesting question which is also a concern of this study, is whether an impersonal mathematical equation can be de-

veloped which would be of some assistance to the professional educator in the identification of individuals who need the special attention of teacher and counselor.

The Appendix contains an 82-item pupil information form which was submitted by the pupil's sixth grade teacher and also by the pupil's sixth grade principal. This information form contains items which seemed most promising as a means of differentiating between the graduate and the dropout. The items deal with the attitudes, behaviors, skills, physical considerations, personality, extra-curricular activities, home environment, and other family patterns.

For each of these 164 items a Student t-value was computed to ascertain whether there was a significant difference between the mean score of the graduates and the mean score of the dropout. A t-value of approximately 2 is statistically significant for large samples at the .05 level of significance. That is, if there truly is no difference in the population mean of the dropout, and the population mean of the graduate, then the t-value computed on the basis of a sample will be less than 2 in 95% of the "randomly" selected samples. But when there are a large number of dependent variables to be analyzed, a number of statistically significant t-values will result merely from the laws of chance when the true population situation is that there is no difference. For this reason one must cautiously interpret these data since 5% of 164 is approximately 13, the expected number of

t-values to exceed 2.00 as a result of the operation of the laws of chance. To double this problem, each item was analyzed separately for the "random" sample and also for the "most" sample group. (As reported earlier, the "least" sample group was lacking in a sufficient number of dropouts to make a comparison meaningful.) To assist in the evaluation of the following statistics, it is well to keep in mind the following two numbers: (1) A t-value of 2.6 is statistically significant at the .01 level, and (2) a t-value of 3.35 is statistically significant at the .001 level.

The results from these pupil information forms will be presented below. Hopefully, the labor expended in the preparation of these tables will be rewarded by giving the readers of this report a better understanding of the school dropout and possibly some of the precipitating causes.

Only the pupil information items for which there was a statistically significant t-value are presented in the tables. Of course it would also be instructive to refer to pupil information forms in the appendix to note also the items which failed to show a significant t-value. Also, one may need to refer to the forms occasionally to note the method of assigning numbers to the responses. The results from the form which was submitted by the teacher will be presented first. Then will follow the results based on the data from the principals.

TABLE 12 (a)

Grammar School Trait Descriptions By Teachers Revealing A Significant Difference Between Students Who Would Become School Dropouts and Those Who Would Become High School Graduates

VARIABLE	MOST GROUP			RANDOM GROUP		
	GRADUATE MEAN	DROPOUT MEAN	T-VALUE	GRADUATE MEAN	DROPOUT MEAN	T-VALUE
1. What degree of rapport does the child feel he has with:						
a. His classmates	2.869**	2.586	2.481*	3.773	3.486	2.239*
b. His schoolmates	2.885	2.540	3.164*	3.740	3.472	2.162*
c. His teachers	3.059	2.908	1.397	4.087	3.750	2.950*
d. His parents	3.375	3.067	2.455*	4.344	3.956	3.395*
e. His siblings	3.427	3.319	.850	4.123	3.703	3.095*
2. Number of close friends at school	2.461	2.356	1.061	3.318	3.027	2.144*
3. Leadership ability	2.000	1.793	1.933	3.082	2.633	3.054*
4. Followership	2.581	2.465	1.087	3.426	2.942	4.060*
5. Feelings toward authority	3.005	2.666	2.568*	4.050	3.507	4.120*
6. Assumption of responsibility	2.201	1.880	2.792*	3.519	2.859	4.665*
7. Depth of involvement in:						
a. Academic aspect of school	1.853	1.596	2.601*	3.471	2.788	4.916*
b. Student government	1.708	1.543	1.757	3.092	2.661	2.775*
8. Classroom behavior	2.793	2.721	.642	3.859	3.366	3.792*
9. Playground behavior	2.923	2.761	1.535	3.951	3.366	4.851*
10. Neatness of work	2.278	2.170	.968	3.391	2.815	4.052*

** A t-value of 1.97 is statistically significant at the .05 level*

*** Traits were assessed on a 5-point scale with 1 = least value and 5 = the highest*

TABLE 12 (b) (continued)

VARIABLE	MOST GROUP GRADUATE MEAN	MOST GROUP DROPOUT MEAN	MOST GROUP T-VALUE	RANDOM GROUP GRADUATE MEAN	RANDOM GROUP DROPOUT MEAN	RANDOM GROUP T-VALUE
11. Intelligence	2.277	2.062	2.160*	3.529	3.128	3.266*
12. Evidence of creative talent in: b. Linguistics	2.093	1.854	2.559*	3.061	2.735	2.662*
13. Grooming and cleanliness	2.760	2.554	2.038*	3.671	3.295	3.476*
14. Perception of abstract concepts	1.994	1.797	2.020*	3.228	2.647	4.702*
15. Perception of concrete concepts	2.491	2.306	2.008*	3.539	3.179	3.180*
16. Self-concept	2.572	2.343	2.439*	3.415	2.970	3.946
17. Number of interests	2.447	2.335	1.303	3.469	3.078	3.077*
18. Pursuit of known interests	2.371**	2.164	1.920	3.475	3.048	3.112*
19. Handwriting skill	2.293	2.170	1.130	3.270	2.873	2.789*
20. Reading ability	2.016	2.897	1.081	3.590	3.028	3.969*
21. Sense of humor	2.983	2.791	2.873	3.843	3.420	3.843*
22. Response to highly emotional situations	2.551	2.315	2.265*	3.469	2.924	4.437*

** A t-value of 1.97 was statistically significant at the .05 level*
*** Traits were assessed on a 5-point scale with 1 = least value and 5 = the highest*

TABLE 12 (c) (continued)

VARIABLE	MOST GROUP GRADUATE MEAN	MOST GROUP DROPOUT MEAN	MOST GROUP T-VALUE	RANDOM GROUP GRADUATE MEAN	RANDOM GROUP DROPOUT MEAN	RANDOM GROUP T-VALUE
23. Adjustment mechanisms for situations of tension	2.491**	2.262	2.324*	3.381	2.939	3.472*
24. Goals and/or aspirations	2.509	2.200	2.864*	3.536	3.067	3.728*
25. Performance in relation to potential	2.426	2.226	1.807	3.415	2.909	4.028*
26. Contacts with police	4.738	4.048	4.743*	4.924	4.770	2.240*
27. Hobbies	2.201	2.020	1.516	3.208	2.738	2.884*
28. Mother's employment shift: a. Daytime shift b. Swing shift c. Graveyard shift	1.200	1.256	.445	1.108	1.400	2.259*
29. Child lives with: a. Real parents b. Relatives	1.337	1.524	1.911	1.163	1.383	2.391*
30. Number of brothers at home	2.225	2.593	2.704*	2.111	2.137	.183
31. Mother's employment: a. Unemployment b. Part-time c. Full-time	2.851	2.292	2.174	3.785	3.421	1.187
32. Economic level	2.506	2.237	2.633*	3.160	2.964	1.759
33. Estimate of value of home in child's residential area	2.825	2.521	2.365	3.234	2.978	1.616

** A t-value of 1.97 was statistically significant at the .05 level*

*** Traits were assessed on a 5-point scale*

TABLE 12 (d) (continued)

VARIABLE	MOST GROUP GRADUATE MEAN	MOST GROUP DROPOUT MEAN	MOST GROUP T-VALUE	RANDOM GROUP GRADUATE MEAN	RANDOM GROUP DROPOUT MEAN	RANDOM GROUP T-VALUE
34. Estimate of house for family needs	3.046**	2.752	2.274	3.508	3.391	.870
35. Cultural environment of home	2.381	2.000	3.682*	3.488	2.905	4.612*
36. Family recreational pursuits	2.633	2.234	2.840*	3.470	3.102	2.488*
37. Youth organizations	2.178	1.717	3.266*	3.160	2.658	2.906*
38. Cultural activities	1.957	1.559	3.037*	3.077	2.564	3.178*
39. Church services	2.960	2.358	2.827*	3.664	3.590	.330
40. Travel	2.494	2.121	2.363*	3.212	2.906	1.778
41. Vacations	2.590	2.194	2.381*	3.294	2.942	2.264*
42. Estimate of family harmony	2.842	2.463	3.091*	3.812	3.362	3.468*
43. Parental disciplinary methods	3.200	3.520	2.380*	3.389	3.333	.409
44. Grooming and cleanliness (of parents)	2.953	2.773	1.678	3.802	3.406	3.531*
45. Parental attitude towards education	3.011	2.776	2.140*	4.160	3.810	2.879*
46. Parental concern for child's acheivement	2.892	2.456	3.637*	4.023	3.637	3.043*

* *A t-value of 1.97 was statistically significant at the .05 level*
** *Traits were assessed on a 5-point scale*

TABLE 12 (e) (continued)

VARIABLE	MOST GROUP GRADUATE MEAN	MOST GROUP DROPOUT MEAN	MOST GROUP T-VALUE	RANDOM GROUP GRADUATE MEAN	RANDOM GROUP DROPOUT MEAN	RANDOM GROUP T-VALUE
47. Quality of scholastic help received at home	2.156**	1.760	4.112*	3.512	3.000	3.695*
48. Parent regard for school rules and regulations	3.318	2.985	2.757*	4.24.	3.931	2.526*
49. Parental influence in child's future	2.963	2.714	2.346*	4.011	3.632	2.754*
50. Child's occupational future	1.632	1.422	2.336*	3.131	2.620	2.752*

* *A t-value of 1.97 was statistically significant at the .05 level*
** *Traits were assessed on a 5-point scale*

TABLE 13 (a)

Grammar School Trait Descriptions By Principals Revealing A Significant Difference Between Students Who Would Become School Dropouts and Those Who Would Become High School Graduates

VARIABLE	MOST GROUP			RANDOM GROUP		
	GRADUATE MEAN	DROPOUT MEAN	T-VALUE	GRADUATE MEAN	DROPOUT MEAN	T-VALUE
1. What degrees of rapport does the child feel he has with:						
a. His classmates	2.751*	2.279	4.612*	3.700	3.420	2.310*
b. His schoolmates	2.664	2.257	4.021*	3.674	3.420	2.108*
c. His teachers	2.867	2.610	2.523*	3.826	3.666	1.311
d. His parents	3.187	2.854	2.897*	4.082	3.859	1.806
2. Number of close friends at school	2.679	2.341	3.321*	3.460	3.450	.071
3. Leadership ability: (negative or positive)	2.136	1.822	3.051*	3.190	3.014	1.356
4. Followership	2.449	2.271	1.747	3.307	3.100	1.980
5. Feeling towards authority	2.940	2.570	2.959*	3.882	3.542	2.679*
6. Assumption of responsibility	2.181	1.914	2.558*	3.398	3.161	1.757
7. Depth of involvement in:						
a. Academic aspect of school	1.896	1.662	2.520*	3.384	2.924	3.521*
b. Student government	1.805	1.507	2.990*	3.052	2.857	1.227
8. Classroom behavior	2.758	2.521	2.260*	3.702	3.573	1.029
9. Playground behavior	2.909	2.583	3.275*	3.781	3.549	1.966
10. Neatness of work	2.178	2.094	.813	3.408	2.962	3.275*

* *A t-value of 1.97 is statistically significant at the .05 level*
** *All traits were assessed on a 5-point scale*

TABLE 13 (b) (continued)

VARIABLE	MOST GROUP			RANDOM GROUP		
	GRADUATE MEAN	DROPOUT MEAN	T-VALUE	GRADUATE MEAN	DROPOUT MEAN	T-VALUE
11. Intelligence	2.365**	2.224	1.364	3.462	3.213	2.190*
12. Evidence of creative talent in: a. Manual dexterity	2.613	2.383	2.144*	3.235	3.216	.149
13. Grooming and cleanliness	2.786	2.421	3.947*	3.615	3.391	2.186
14. Perception of abstract concepts	2.096	1.848	2.287*	3.245	3.073	1.199
15. Perception of concrete concepts	2.464	2.201	2.501*	3.435	3.285	1.139
16. Self-concept	2.397	2.215	2.045*	3.361	3.267	.804
17. Handwriting skill	2.280	2.191	.801	3.210	2.829	2.718*
18. Reading ability	2.012	1.750	2.377*	3.456	3.100	2.538
19. Sense of humor	2.826	2.620	2.178	3.586	3.245	2.825
20. Religious participation in Sunday School, Church, or Synagogue	3.080	2.190	3.430	3.695	3.562	.500
21. Response to highly emotional situations	2.585	2.257	3.549	3.355	3.113	1.889

* *A t-value of 1.97 is statistically significant at the .05 level*
** *All traits were assessed on a 5-point scale*

TABLE 13 (c) (continued)

VARIABLE	MOST GROUP GRADUATE MEAN	MOST GROUP DROPOUT MEAN	MOST GROUP T-VALUE	RANDOM GROUP GRADUATE MEAN	RANDOM GROUP DROPOUT MEAN	RANDOM GROUP T-VALUE
22. Adjustment mechanisms for situations of tension	2.553**	2.128	4.311	3.307	3.111	1.566
23. Performance in relation to potential	2.364	2.225	1.298	3.369	3.036	2.423
24. Contacts with police	4.735	4.105	4.725	4.927	4.822	1.653
25. Hobbies	2.090	1.800	2.017	3.082	3.090	.038
26. Father's employment shift: a. Daytime shift b. Swing shift c. Graveyard shift	1.012	1.000	.855	1.034	1.217	3.026
27. Highest level of education completed:						
a. Present father	2.750	2.000	3.076	3.707	3.600	.311
b. Present mother	2.543	1.977	2.645	3.333	3.352	.067
28. Economic level	2.430	2.194	2.225	3.140	3.052	.804
29. Estimate of value of home in child's residential area	2.649	2.478	1.406	3.195	2.859	2.403
30. Estimate of house for family needs	2.879**	2.568	2.538*	3.319	3.157	1.307
31. Mobility of family	3.474	3.014	3.393*	4.030	3.943	.593

** A t-value of 1.97 is statistically significant at the .05 level*
*** All traits were marked on a 5-point scale*

TABLE 13 (d) (continued)

VARIABLE	MOST GROUP			RANDOM GROUP		
	GRADUATE MEAN	DROPOUT MEAN	T-VALUE	GRADUATE MEAN	DROPOUT MEAN	T-VALUE
32. Cultural environment of home	2.375**	1.960	4.203*	3.361	2.961	3.364*
33. Degree of parent-child participation in:						
a. Family recreational pursuits	2.407	2.038	2.879*	3.418	3.117	1.778
b. Youth organizations	1.953	1.685	2.233*	3.191	2.821	1.851
c. Cultural activities	1.783	1.578	1.839	3.129	2.571	2.972*
d. Church services	2.638	2.000	2.751*	3.422	3.176	.947
e. Travel	2.073	1.685	2.804*	3.187	2.807	2.094*
f. Vacations	2.269	1.823	3.195*	3.214	2.851	1.997*
34. Estimate of family harmony	2.866	2.368	4.290*	3.718	3.437	2.034*
35. Grooming and cleanliness (of parents)	2.942	2.603	3.190*	3.701	3.460	2.018*
36. Parental attitude towards education	3.052	2.625	4.035*	4.000	3.722	2.202*
37. Parental concern for child's achievement	2.906	2.466	3.847*	3.913	3.666	1.960
38. Quality of scholastic help received at home	2.171	1.680	4.970*	3.438	3.166	1.816
39. Parent regard for school rules and regulations	3.364	2.807	4.770*	4.003	3.763	1.844
40. Parental influence in child's future	2.955	2.633	3.378*	3.831	3.441	2.610*
41. Child's occupational future	1.627	1.492	1.546	3.154	2.500	3.605*

** A t-value of 1.97 is statistically significant at the .05 level*
*** All traits were marked on a 5-point scale*

Undoubtedly, many of these differences between the graduate and the dropout come as no surprise to the experienced educator, but possibly others are instructive. Generally, the size of the actual difference in the mean was small, but due to the statistical power inherent in larger samples these differences are discerned as being beyond what could have happened by chance if the true difference were zero. Many of the t-values were sufficiently large to result in the rejection of the null hypothesis with 99.9% confidence.

As was the case for the achievement measures in the preceding section, the difference between the graduate and the dropout was far smaller than the difference between the "random" group and the "most" group. The "random" dropouts had mean scores much higher than the "most" dropouts or the "most" graduates. Without question many of these items differentiate between the graduate and the dropout, and yet the differences are so small that it precludes the possibility of assessing dropout potential with the desired accuracy. The following section will deal with the task of devising a linear function of these items to investigate whether any combination or weighing of items, which differentiate between the dropout and the graduate, can be employed to give assistance to the professional educator in estimating pupil dropout potential.

THE PREDICTION OF DROPOUT POTENTIAL

When the means of two groups differ significantly on some dependent variable, then there is necessarily a significant correlation (point-biserial coefficient) between the dichotomous variable of group designation and the dependent variable in question. The previous section presented the results for many dependent variables whose means for the dropout and the graduate groups differed. To avoid unnecessary redundancy, only a few point-biserial coefficients will be presented to indicate the magnitude of such correlations. All of the results of this section were derived solely from the "random" sample. Such is the requirement of inferential statistics.

TABLE 14

Point-Biserial Correlation Coefficients Between Graduation Status and Selected Variables

VARIABLE	CORRELATION WITH GRADUATE-DROPOUT CLASSIFICATION	N
1. Attendance record	V_{PBI} = .18*	390**
2. CTMM-IQ (total)	V_{PBI} = .25	355
3. Arithmetic GPA (grade school)	V_{PBI} = .16	436
4. Citizenship average (grade school)	V_{PBI} = .13	342
5. Academic GPA (grade school)	V_{PBI} = .22	443
6. Teacher estimate of participants:		
a. Feeling toward authority	V_{PBI} = .26	483
b. Assumption of responsibility	V_{PBI} = .25	483
c. Playground behavior	V_{PBI} = .25	481
d. Perception of abstract concepts	V_{PBI} = .27	475

* *The positive coefficients indicate that a favorable score on the variable is associated with graduation more than with dropout status.*

** *The variation in the sample sizes are a result of incomplete and missing data.*

The coefficients presented in Table 14 are quite low. If, however, their intercorrelations are also low, then a weighted composite of these variables may be formulated which would give a score more highly related to graduation status than any single measure.

To investigate this possibility, twelve of the most highly correlated (to graduation status) academically related variables were selected along with sixteen trait description items (submitted by teacher and principal) which were most highly correlated to graduation status.

The academic variables and the trait description variables were submitted separately for a multiple regression analysis. In addition, a subset of five academic and four trait variables, which were most predictive of graduation status, was assembled and processed. The results of these analysis are presented in Table 15.

TABLE 15

Multiple Correlation Coefficients Between Sets of Academic Variables, Trait Description Variables, and A Combination of Both Types with Graduation Status

VARIABLE	MULTIPLE R WITH GRADUATION STATUS	
1. Set of 12 academic variables	R = .33	N = 299*
2. Set of 16 trait descriptive items	R = .31	N = 336
3. Combination of best predictors from each of the above	R = .39	N = 213

* *The statistical requirement of complete data sets resulted in a reduction in the sample sizes.*

An examination of Table 15 reveals the sustantial overlap between the two sets of variables, and the small increment in R which results from a selection of the most predictive variables from both sets. Thus the multiple R = .39 is the maximum correlation between a weighted composite of these variables and graduation status. The variables related to graduation status were also substantially related to each other so that the point of diminishing returns came quickly.

The task of predicting dropout potential was investigated further by utilizing the procedures of discriminatory analysis. These procedures involve: (1) building a composite picture of the dropout population, and also a composite picture of the graduate population; (2) the data for an individual are compared to the two composite pictures and a mathematic determination is computed for the probabilities that the individual belongs to either group. The group associated with larger probability is selected as the best guess for the individual as to his group membership.

The "random" group of 168 graduates who had complete data were processed by the discriminatory analysis procedures. Forty-six of these 168 would have been classified as potential dropouts while 122 of them would have been correctly classified as potential graduates. The "random" group of 48 dropouts with complete data were processed similarly and 9 of these were classified as potential graduate and 39 as potential dropouts. A tabular presentation of these data follows:

TABLE 16

Percentages of Correct Group Assignment by the Discriminatory Analysis Procedures for the "Random" Sample Participants with NO Missing Data

		GROUP ASSIGNMENT BY DISCRIMINATORY FUNCTION	
GROUP	N	GRADUATE	DROPOUT
Graduate	168	122	46
Dropout	48	9	39

Table 15 denotes that the discriminatory function correctly assigned group membership to 122 of the 168 graduates, an accuracy rate of 72%. The 48 dropouts were correctly categorized for 39 cases, or an 81% accuracy rate.

The exact discriminant function produced through this study is given below. To economize on space the variables will be defined numerically, as follows:

VARIABLE

1. Attendance record
2. C.T.M.M.-I.Q. (Total)
3. Arithmetic GPA (grade school)
4. Citizenship average (grade school)
5. Academic GPA (grade school)
6. Teacher estimate of pupil's feeling toward authority
7. Teacher estimate of pupil's assumption of responsibility
8. Teacher estimate of pupil's playground behavior
9. Teacher estimate of pupil's perception of abstract concepts

A. *Discriminant function to give the probability that an individual will be a graduate:*

$$P = 15.516\ X_1 + .844\ X_2 + 2.392\ X_3 + 60.906\ X_4 - 6.604\ X_5 + 1.324\ X_6 - 2.115\ X_7 + .876\ X_8 - .604\ X_9 - 109.569$$

B. *Discriminant function to give the probability that an individual will be a dropout:*

$$P = 13.860\ X_1 + .803\ X_2 - 2.809\ X_3 + 60.029\ X_4 - 6.996\ X_5 + 1.365\ X_6 - 2.358\ X_7 + .531\ X_8 - .601\ X_9 - 99.972$$

It is a difficult task to evaluate these results. Some comments in this connection follow:

1. The Discriminatory function would have assigned all members of the "most" group to the potential dropout category. The principals who participated in this study also made the same assignment.
2. The discriminatory function would have assigned all members of the "least" group to the potential graduate category. The participating principals did likewise.
3. The discriminatory function correctly classified 122 of the 168 "random" sample graduates while scoring 46 misses. It also correctly classified 39 of the 48 dropouts, scoring 9 misses. No comparison can be made between the efficiency of the function and that of school personnel since no data were obtained from them. If it were desired to compare the efficiencies, the research design must obtain from the principal his estimate of dropout potential for each student in the "random" sample. The interesting question of whether the rather informal intuitive estimate of the teacher and/or principal as to pupil dropout potential is more, less, or equal in efficiency to that of an objective mathematical determination is unanswered by this present study.
4. The consequences of the two types of misclassifications must be considered. If the professional educator has

something to offer to the future dropout by way of assisting him to adjust to and profit from his educational experiences, then the potential dropout who, nevertheless, perseveres and does earn a high school diploma, may very well also need and deserve the same service. If, on the other hand, the school personnel are not presently equipped to help significantly the potential dropout, then the identification of such is probably undesirable.

SUMMARY OF THE FINDINGS

Profiles of the school dropout and the high school graduate were compared on the basis of dozens of significant variables which differentiated between them. The differences were statistically significant, however, were generally small in magnitude.

The "most" sample means were vastly different from "random" sample means indicating that when principals choose the individual "most" likely to drop, he is probably guided by the same variables which differentiate between the dropout and the graduate.

A discriminant function to assign group membership was computed. The data for the individuals from the "random" sample were analyzed by this function and resulted in correct group assignment as potential dropouts or graduates in 70 - 75% of the cases. Due to the limitations of the research design, the question of whether school personnel can

estimate group assignment with more, equal or less efficiency than the discriminant function was indeterminable.

PROJECT SUMMARY AND RECOMMENDATIONS

This document completes the final report of a six year longitudinal study of Orange County school dropouts initiated and conducted by the Orange County Department of Education. The initial phase of the study was under the direction of Ralph Hickman, Coordinator, Guidance Services; the middle phase under the direction of Thomas Kelly, Coordinator, Youth Services; and the final phase was completed under the direction of C. D. Johnson, Coordinator, Guidance Services, Orange County Department of Education. The project surveyed the extent of the dropout problem in the County, studied characteristics of dropouts and established criteria to identify potential dropouts. A discriminant function to give the probability that an individual would be a graduate or would be a dropout using sixth grade data was generated as the final product of the study.

SUMMARY

Longitudinal data from a sample population of 2,400 sixth graders from 200 schools representing twenty-six elementary and unified school districts were analyzed for stability of aptitude measures, achievement measures, deportment grades and place of residence. A moderate stability of the verbal aspect of intelligence was found but there was almost no correlation after the 6 year span between the non-verbal measure and the verbal measure. Correlation coefficients

were quite low between verbal I.Q. measures and GPA.

I.Q. measures seemed indistinguishable from the achievement measures. Grade school measures in language while statistically correlated with high school language measures, were not sufficiently strong to improve prediction substantially; there was very little stability in measures of mathematics; average citizenship grades in grade school and average citizenship grades in high school were near zero correlation; the data on mobility were incomplete but seemed to indicate less residential stability in the dropouts' family than in the family of the graduate. The review of the literature summarized in Appendix E indicates that residential stability was reported as a dropout factor in Fresno's 1966 study.

The general findings of studies addressing school dropouts throughout the United States reported in the review of the literature (Appendix E) have not provided the clear identification of predictive variables isolated by this Orange County study. The studies reported in this literature isolated many after-the-fact components such as retention (Peck, 1963; Graybeal, 1964; Kelly, 1965) but no study specified those factors which would discriminate at the sixth grade level between the potential dropout and the potential graduate. The results of the Orange County study did identify such predictive variables which are:

1. Attendance record

2. C.T.M.M.-I.Q. (Total)
3. Arithmetic GPA (Grade school)
4. Citizenship average (Grade school)
5. Academic GPA (Grade school)
6. Teacher estimate of pupil's feeling toward authority
7. Teacher estimate of pupil's assumption of responsibility
8. Teacher estimate of pupil's playground behavior
9. Teacher estimate of pupil's perception of abstract concepts

The equation which would generate these probabilities is given in the body of the findings which also suggest that school personnel's informal, intuitive estimate as to a pupil's dropout potential may be useful when identifying the student "most likely" to drop out and the student "least likely" to drop out although the project design did not provide for the gathering of conclusive data.

RECOMMENDATIONS

1. The Orange County Department of Education should provide leadership in identifying all dropout prone sixth grade students in Orange County Schools.

2. The Orange County Department of Education should provide leadership in developing programs designed to assist the dropout prone student toward graduation.

3. The Orange County Department of Education should provide leadership in making recommendations to appropriate governing bodies to examine the practice of administer-

ing both intelligence and achievement tests at the sixth grade level.

4. The Orange County Department of Education should provide leadership in critically examining what is assessed by standardized tests and the content of curriculum offerings at the secondary school level.

APPENDIX A

APPENDIX A

THE DROPOUT COMMITTEE

Thomas A. Kelly, Chairman and Coordinator Youth Opportunities
Orange County Department of Education

Ralph C. Hickman, Coordinator Guidance Services
Orange County Department of Education

Richard Buswell, Activities Director
Capistrano Union High School

Richard Denholm, Consultant, Mathematics and Science
Orange County Department of Education

Harry Garber, Principal, Adult Education
Garden Grove Unified School District

Joseph Hamblet, Director, Instructional Services
Newport-Mesa Unified School District

U. Edwin Harding, Consultant, Child Welfare and Attendance
Orange County Department of Education

Miss Martha Isenberg, Counselor
Laguna Beach High School

Ralph Kingsbury, Attendance Coordinator
Anaheim Union High School District

Wilford H. Lane, District Coordinator, Pupil Welfare
and Attendance
Fullerton Union High School and Junior College District

Mrs. Joy Valpey, Coordinator of Counseling and Guidance
Placentia Unified School District

Norman Loats, Assistant Superintendent
Newport-Mesa Unified School District

Charles Mashburn, Director, Special Services and Recreation
Huntington Beach Union High School District

William Montonna, Principal, Villa Park High School
Orange Unified School District

Milton R. Sanden, Assistant Superintendent
Santa Ana Unified School District

Dropout Committee

John Sours, Supervisor of Guidance
Tustin Union High School District

Miss Maxine Whisnant, Assistant Principal - Head Counselor
Brea-Olinda Unified School District

APPENDIX B

INSTRUCTION SHEET FOR FILLING OUT DROP-OUT FORM

ORANGE COUNTY SECONDARY SCHOOLS - 1963-64

GENERAL INSTRUCTIONS

Please complete each item. Do not use pencil. Type or print. Complete two forms for each student who is dropping out of school. Mail one copy to the County Office and retain other one for your files.

Complete forms for each student who indicates he or she is transferring to another school. Hold this form until a transcript is requested by the other school. In the event there is no request for a transcript within a reasonable amount of time (usually within six weeks), the student then becomes a drop-out.

Please have this form filled out by a certificated person designated by the local school district. The completed drop-out forms should be sent to Ralph Hickman, County Schools Office, through the district office or the individual school as set up by the local administrator. They should be sent to the County Schools Office once a month.

This study is to run from February 1, 1963 through January 31, 1964.

INTERPRETATION OF FORM ITEMS

1) Please give student's first, middle, and last name.

2) Complete date of withdrawal (month - day - year).

3) Home address where student is now living.

4) City in which student now resides.

5) Complete birth date (month - day - year).

6) Actual age.

7) Sex - Check M or F.

8) Grade level, which means the grade student is in at the time he drops out of school.

9) IS STUDENT PRESENTLY EMPLOYED: In regular part-time employment. Intermittent work, such as part-time baby sitting, should not be considered as employment.

10) HAS THIS STUDENT EVER BEEN IN TROUBLE WITH THE LAW: This is to be interpreted as follows: Has the student been before the juvenile court and placed on formal or informal probation?
    a) Formal Probation is when a student is made a ward of the court and placed on probation.
    b) Informal Probation is when wardship has not been designated, but the student is being supervised by a probation officer.

11) HOME SITUATION: What we want to find out here is whether there is a divorce, separation, or death of one parent, or other factor in the home causing conflict.

12) QUARTER IN WHICH PUPIL DROPPED, one through four: The "Fall No-show" is to be interpreted as a student who was in school in June but did not return to school in September.

13) INTELLIGENCE LEVEL: Below average should be considered as a total IQ of 89 or below. Average intelligence would include total IQ's from 90 to 110. Above average intelligence will be those pupils having total IQ's above 110. It is recommended that the median score should be the average of several intelligence tests.

14) RANK OF STUDENT IN HIS CLASS OR THE COUNSELOR'S ESTIMATE OF HIS RANK

15) WAS THIS DROP-OUT INITIATED BY THE SCHOOL ADMINISTRATION: Administratively initiated action would be a situation wherein a student's attendance is terminated for reasons of discipline, academic failure, poor attendance, etc.

16) REASONS FOR DROP-OUT: Please check one or more listed items under this heading.

17) IS STUDENT SUPPORTING HIS OWN MOTOR VEHICLE: This includes motor scooters, motorcycles, automobiles, etc.

2/63 - 1 M

CODE SHEET FOR DROP-OUT STUDY

ORANGE COUNTY SECONDARY SCHOOLS - 1963-64

This information is to be held strictly confidential by both the County Schools Office and the school districts. This is a cooperative study by the Orange County secondary school districts and the County Schools Office for the purpose of investigating the extent and nature of the drop-out problem in the Orange County Schools. For the purpose of this study, a drop-out has been defined as follows:

"A student who enters school at ninth grade or above, who leaves without a valid transfer or completion of attendance through the twelfth grade."

(1) NAME _____ (Last First Middle) **(2) DATE OF WITHDRAWAL** _____

(3) HOME ADDRESS _____ **(4) CITY** _____

(5) BIRTHDATE _____ (month day year) **(6) AGE** _____ (years) **(7) SEX** ☐ M ☐ F **(8) GRADE LEVEL** _____

(9) IS STUDENT PRESENTLY EMPLOYED? ☐ Yes ☐ No

(10) HAS THIS STUDENT EVER BEEN IN TROUBLE WITH THE LAW? ☐ Yes ☐ No

(11) HOME SITUATION: Please check one or more items:

- (a) One parent in home ☐
- (b) Both parents in home ☐
- (c) Divorced or separated ☐
- (d) Other family problems ☐

If (d) is checked, please explain _____

(12) QUARTER IN WHICH PUPIL DROPPED:

- ☐ 1st
- ☐ 2nd
- ☐ 3rd
- ☐ 4th
- ☐ Fall No-show

(13) INTELLIGENCE LEVEL:

- ☐ Below Average (89 down)
- ☐ Average (90 - 109)
- ☐ Above Average (110 up)

(14) RANK OF STUDENT IN CLASS OR THE COUNSELOR'S ESTIMATE OF HIS RANK:

Low one-third ☐ Middle one-third ☐ High one-third ☐

(15) WAS THIS DROP-OUT INITIATED BY THE SCHOOL ADMINISTRATION? ☐ Yes ☐ No

(16) REASONS FOR DROP-OUT: Check one or more

Academic failure	☐	Military service	☐
Lack of interest	☐	Physical health	☐
Poor attendance	☐	Home problem	☐
Mental health	☐	Pregnancy	☐
Discipline	☐	Work	☐
Marriage	☐	Unknown	☐
		Other	☐

If reason is "other", please explain: _____

(17) IS STUDENT SUPPORTING HIS OWN MOTOR VEHICLE? ☐ Yes ☐ No

Prepared by: _____

Position: _____

School: _____

District: _____

Date: _____

Please mail at the end of each month to:

Thomas F. Kelly, Chairman
Drop-out Committee
Orange County Schools Office
1104 West Eighth Street
Santa Ana, California

APPENDIX C

F. A. GRUNENFELDER
SUPERINTENDENT

TELEPHONE
547-0847

Orange County
California

SUPERINTENDENT OF SCHOOLS
1104 WEST EIGHTH STREET
SANTA ANA

May 10, 1963

Would you please help me with my problem?

Many students like yourself leave high school before graduation for many reasons. I am interested in finding out from former students themselves why young people leave school. So, would you please take a couple of minutes to fill out the enclosed form and return it at once in the stamped, self-addressed envelope?

Thank you very much for your help. Best wishes in the future.

Sincerely,

Frank A. Grunenfelder

Frank A. Grunenfelder
County Superintendent
of Schools

FAG:bc

EP-1953

QUESTIONNAIRE

1. Whose idea was it for you to leave school? My Own ☐ Parents ☐ Schools ☐

2. Did your parents agree to your leaving school? Yes ☐ No ☐

3. If you wish, would you please explain your reason for finally deciding to leave school? If you need more space, use back of paper. _____

_____

4. Which of the following statements might have encouraged you to remain in school? Please check one or more.

   (1) More help from teachers in classroom assignments. ☐

   (2) More choices of vocational courses. ☐

   (3) Financial help. ☐

   (4) A part time job. ☐

   (5) More help in reading in high school. ☐

   (6) More help in arithmetic and mathematics in high school. ☐

   (7) More help in reading in elementary school. ☐

   (8) More help in arithmetic and mathematics in elementary school. ☐

   (9) More time to talk to my school counselor. ☐

5. Did you dislike school? Yes ☐ No ☐

6. If yes, when did you first begin to dislike school?

   Elementary ☐ 7th-8th ☐ 9th ☐ 10th ☐ 11th ☐ 12th ☐

7. Which subject did you like most?

   English ☐ History ☐ Math ☐ Science ☐ Art ☐ Music ☐

   Shop ☐ Home Economics ☐ Physical Education ☐ Typing ☐ Others ☐

8. Do you plan to get a high school diploma? Yes ☐ No ☐

9. If so, in what way? Return to regular school ☐ Correspondence school ☐

   Night school ☐ Other _____

10. While in school, did you take part in any of the following?

    Sports ☐ Clubs ☐ Other Student Activities ☐

11. What person in school did you feel helped you the most?

    Principal ☐ Vice-Principal ☐ School Counselor ☐ Coach ☐

    Classroom Teacher ☐ Attendance Counselor ☐ Others ☐ No One ☐

12. Do you now have a job? Yes ☐ No ☐

13. If so, what kind of a job do you have? _____

14. Would you be interested in attending a six weeks special summer session set up by the County Schools Office to help you get a high school diploma? Yes ☐ No ☐

Thanks again for your help. I am sure many students in Orange County will be helped by your reply to this questionnaire. Please return the questionnaire as soon as possible.

Department _____ Room _____
Orange County Schools Office
1104 West Eighth Street
Santa Ana, California

Frank A. Grunenfelder
County Superintendent of Schools

RCH:bc
5-10-63/800

EP-1953

APPENDIX D

PROJECT DESCRIPTION

ORANGE COUNTY PREDICTION SURVEY

1.00 TITLE: Creation of a Predictive Scale Designed to Identify at the Elementary School Level, Those Pupils Who Are (1) Most Likely to Become School Dropouts and (2) Those Least Likely to Drop Out.

2.00 DESCRIPTION OF PROPOSAL

.01 Major Purpose. We wish to determine at the sixth grade what are the factors which cause a youngster to be dropout-prone.

.02 Importance of the Study. A previous one-year study conducted by this office concluded that efforts to stem the dropout tide must be begun in the elementary school. With the growing emphasis on elementary counseling, we believe that identification of problems is the first step in determining what kinds of counselors we will need and what must be done for elementary pupils so they will remain in and profit from school.

.03 Additional Purposes. We will discover whether elementary school teachers and principals can predict potential dropouts as they claim. We will learn whether teachers or principals are better prognosticators. We will cause teachers to make in-depth self-evaluation of their knowledge of youngsters and consider whether their classroom practices are in keeping with their knowledge. We will establish the importance of health factors and the nurse's need to participate as an essential part of the staff's cooperation in a child's success.

.04 Procedures.

a) Subjects. Each elementary school principal in Orange County (there are approximately 300) will select from his sixth-graders (1) four youngsters (2 boys and 2 girls) who are, in his professional judgment, most likely to become school dropouts, (2) four youngsters (2 boys and 2 girls) who are least likely to drop out and (3) four youngsters to be chosen from a table of random numbers. This will provide 12 youngsters at each school for a total sample of 3600.

b) Collection and Treatment of Data. A three-part questionnaire will be completed for each pupil. (See attached sample). Part I will seek general information normally found in the pupil's cumulative folder. Part II will seek health information as provided by the school nurse. Part III will be a bi-polar continuum which will solicit from the teachers and principals their estimate of behavioral traits and familial background of each student.

All three parts will be key punched into IBM cards. About one hundred bits of information will be available for each child on three cards. Print outs will provide a tally of all the data gathered. An analysis of co-variance and/or a factor

analysis will be made and resultant statistical validity established. Significant co-relations will be found.

c) Projected Activities and Control Procedures. The intent of the study is the identification of potential dropouts, but those least likely to drop as well as a random sample will serve as bases of comparison. No specific attention will be given the subjects. In fact, it is essential that they be left alone and not identified. If they are given special treatment the validity of the prediction cannot be verified. The subjects must proceed through the normal educational programs.

d) Criteria. It is presumed that from the collected data certain traits will become evident and will form the basis of a predictive scale. As an immediate check, those factors which will have been isolated as indicators of dropout vulnerability will be applied to those high school youngsters who are now actually dropping.

A follow-up of the sixth graders in the study will be necessary to learn whether they do or do not drop out.

e) Expectations. It is expected that a definitive scale can be established that will pinpoint the causes of dropping out. It is presumed that dropping out is a growing process so that factors identified in the sixth grade were incubated even prior to school entrance and nurtured during the intervening years. Thus, following identification, preventive measures may be begun as soon as a child arrives in school.

.05 Anonymity.

a) Districts. No attempt will be made to tally, study, or evaluate the school district from which the subject has been chosen.

b) Schools. As in the case of the district, no examination of the schools nor its personnel will take place. The study was so designed that no such evaluation is possible.

c) Subjects. The study was deliberately designed to occur at the end of the sixth grade because in all instances (except for retentions) the subjects will move to a new school within several weeks.

No identification will be made to indicate that the child is a part of this survey per se; however, in order to follow-up, a letter will be placed in the child's folder explaining that he is one of 3000 youngsters chosen at random in Orange County for a mobility study -- that we are trying to discover how many moves a child makes between the sixth grade and the time he completes his high school education. (See attached "To Whom It May Concern" letter).

d) Parents. Parents are not to be contacted, nor shall there be any probing for information not already known. The basic premise of the investigation is that the information requested is already part of the teacher's knowledge. If a teacher, nurse, or principal cannot answer a question, they should not make inquiries of anyone. They leave blank unknown items and move on.

3.00 TIME INVOLVEMENT

.01 Principals. The principal will be responsible for the subjective selection of the pupils. He will have his vice-principal or secretary complete Section I which solicits information from the cum folder. He will complete Section III on each of the subjects. He will be responsible for the forwarding of all the completed documents. Total estimated time, 4-5 hours.

.02 Nurses. A health appraisal will be required for each of the subjects. If health information is current on a given child, ten minutes would suffice to complete the form, otherwise about one-half hour would be needed. The nurse's total time would depend on how many schools she serves. A rule of thumb would be 10 to 30 minutes per child.

.03 Teachers. The teacher, as well as the principal, completes Section III of the study. They should read each item, make a quick judgment, and respond by checking one item of a five point scale. If they do not have sufficient knowledge to make a reasonable judgment they leave the item blank and move immediately to the next trait. They need not spend more than ten minutes on any one questionnaire. If the teacher happens to have all twelve subjects in her class, she will use two hours, otherwise she will take her fractional part of the twelve.

Prepared by the Orange County Superintendent of Schools
EP-6087

INSTRUCTIONS TO PRINCIPALS

May, 1965

ORANGE COUNTY PREDICTION SURVEY

To All Elementary School Principals:

The Orange County Schools Office is undertaking a study to determine what are the qualities evident in sixth grade youngsters that will permit us to predict their future success in school.

It is an ambitious proposal that is soliciting the assistance of every single elementary school in the County. As you can see, such a project has national as well as local implications. Its success will be an immeasurable step forward in elementary education. We, therefore, are asking your most zealous cooperation.

GENERAL DIRECTIONS:

1. You will select from among your sixth graders:

   A. Four (4) youngsters (2 boys and 2 girls) who, according to your best professional subjective judgment, are most likely to become school dropouts.

   B. Four (4) youngsters (2 boys and 2 girls) who are least likely to drop out, and

   C. Four (4) youngsters (2 boys and 2 girls) chosen at random. To do this, put the names of your sixth graders in a hat and pick until you have the required two boys and two girls.

2. In your selection of the twelve youngsters, do not include any who have been identified as MR's or gifted. We want to work with the middle of the population not the ends.

3. Give copies of the enclosed forms to the appropriate personnel.

   A. Section I is to be completed by a staff person in the principal's office.

   B. Section II is to be completed by the school nurse.

   C. Section III is to be completed separately by the principal and the sixth grade teachers who have the selected youngsters in their classes. The white form is for the teacher to complete while the principal completes the colored form. They are both identical but will allow us to compare teacher and principal judgment.

Orange County Prediction Survey

May, 1965

4. Sections I & II seek factual information for the most part. Section III solicits teacher and principal judgment. Care must be taken that:

   A. The child is in no way identified either in his cum folder or to any staff members other than the participants.

   B. The choice you make regarding dropout proneness is not revealed. Those completing the forms need not know about the three categories (least likely, most likely, and random) which you used in your selection. Participants can be told that the youngsters represent a cross section of the sixth grade. A coding system will keep them separate for statistical accounting.

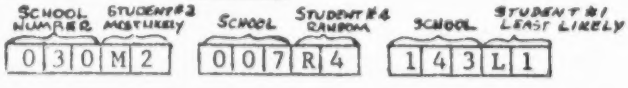
   C. No respondent should seek out unknown information by contacting parents or any other persons. The respondents are to make quick replies. If they honestly feel that they have insufficient knowledge to make a reasonable judgment, they are to leave the item blank and move right on. Though we prefer as many items being answered as possible, we will also learn much from those left blank.

   D. To obtain the pupil number use the following code:

      1) Your school number is _____. Place it in the first three squares of the pupil number.

      2) Pupils are identified in the remaining two boxes. Use M1, M2, M3, M4 for those most likely to drop and L1, L2, L3, L4, for those least likely to drop, and R1, R2, R3, R4 for those chosen at random.

      3) Examples:



      4) Be sure to keep careful and accurate track of these since no other form of identification will be used. Any mix-up will kill us!

   E. Have the questionnaires completed as soon as is reasonable and when you have them finished send them in a packet directly to:

Mr. Thomas F. Kelly
Orange County Schools Office
1104 West 8th Street
Santa Ana, California

F. See that the "To Whom It May Concern" letter is placed in the cum folder of each of the twelve subjects.

G. Place the names of the selected pupils on the enclosed 5 x 8 cards and return them with the completed materials. This is necessary for follow-up.

There are fourteen members of the committee who helped design this study. We hope that at least one should be available should you need special help.

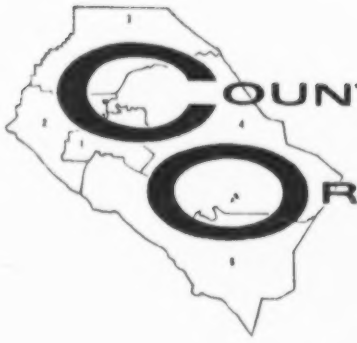
We realize that this can become an onerous task, but since its motivation was inspired by elementary school leaders, we are counting on your interest and professional pride. We are sure you recognize its unlimited potential.

Sincerely,

Thomas F. Kelly

Thomas F. Kelly, Coordinator
Youth Opportunities

TFK:pt



F. A. GRUNENFELDER,
COUNTY SUPERINTENDENT OF SCHOOLS

1104 WEST EIGHTH STREET
SANTA ANA, CALIFORNIA 92701

TELEPHONE: 547-0547
AREA CODE 714

SUPERINTENDENT OF SCHOOLS

PLEASE KEEP THIS LETTER PERMANENTLY IN
THIS STUDENT'S CUM FOLDER

May, 1965

To Whom It May Concern:

This student is one of 3,000 selected at random in Orange County (California) for the purpose of studying mobility. We are trying to find out how many moves a student makes between the sixth grade and the time he completes his education.

We would appreciate your assistance by notifying us when this child arrives at or leaves your school. We need no other information -- just his name and a statement that he has left (and where he is going, if you know), or has arrived at your school. Won't you please help? A postcard will do the job. Write to:

Mr. Thomas F. Kelly
Orange County Schools Office
1104 West 8th Street
Santa Ana, California 92701

We are guessing that the average number of moves will be three or four per child. This means we will have to keep track of 9,000 to 12,000 moves. You can see how much we will appreciate your cooperation!

Sincerely,

Thomas F. Kelly

Thomas F. Kelly, Coordinator
Youth Opportunities

TFK:pt
EP-6066

PLEASE KEEP THIS LETTER PERMANENTLY IN
THIS STUDENT'S CUM FOLDER

ORANGE COUNTY PREDICTION SURVEY

SECTION I. GENERAL INFORMATION. This section is to be completed under the direction of the building principal. The information requested should be available, by and large, in the pupil's cumulative folder. Do not seek out unknown facts.

1. PUPIL NUMBER: ☐☐☐☐☐

2. SEX: ☐☐ Boy Girl

3. AGE: _____Years, _____Months

4. BIRTHDATE:

5. BIRTHPLACE: (1) Orange County_____ (2) Other Calif. County_____ (3) Out of State_____ (4) Out of Country_____

6. ETHNIC GROUP: (1) Anglo_____ (2) Mexican-American_____ (3) Negro_____ (4) Oriental_____ (5) Other_____

7. RELIGIOUS PREFERENCE: (1) Catholic_____ (2) Protestant_____ (3) Jewish_____ (4) Other_____

8. LANGUAGE(S) USED IN THE HOME: (If more than one, place 2 checks (✓✓) adjacent to the predominant language).

(1) English_____ (2) Spanish_____ (3) Japanese_____ (4) Chinese_____ (5) French_____ (6) German_____ (7) Italian_____ (8) Hebrew_____ (9) Other_____

9. USUAL MODE OF TRANSPORTATION TO SCHOOL:

(1) Bus_____, (2) Bike_____, (3) Walk_____, (4) Car_____, (5) Other_____

10. INITIAL SCHOOL EXPERIENCE:

	Yes	No
(1) Pre-school		
(2) Kindergarten		
(3) 1st Grade		

11. AGE AT 1ST GRADE ENTRANCE:

_____Years, _____Months

12. NUMBER OF RETENTIONS: _____ At what grade(s)?_____

13. NUMBER OF DOUBLE PROMOTIONS: _____ At what grade(s)?_____

14. PREVIOUS TYPE(S) SCHOOL(S) ATTENDED:

(1) Parochial_____, (2) Private_____, (3) Public_____, (4) Other_____

15. RECORD OF ATTENDANCE:

Grade	Total Days Enrolled	Days Absent	Number of Tardies
K			
1			
2			
3			
4			
5			
6			

16. TEST DATA:

Standardized Achievement:

Name of Test	Grade	Read Voc. G.P.	Read Voc. %	Read Comp. G.P.	Read Comp. %	Arith. Reas. G.P.	Arith. Reas. %	Arith. Fund. G.P.	Arith. Fund. %	Mech. Eng. G.P.	Mech. Eng. %	Spell. G.P.	Spell. %

Group:

Name of Test	Date Given	Grade	C.A.	Lang. MA	Non-Lang. MA	Lang. IQ	Non-Lang. IQ	Total IQ

Individual:

Name of Test	Date Given	Grade	Total IQ	Verbal IQ	Performance IQ

17. ACADEMIC ACHIEVEMENT: (Circle appropriate grade. If necessary, convert your grading pattern (1,2,3; O,S,N; etc.) to A,B,C's.)

Subject	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade	Repeated Grade
Reading	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Language Arts	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Math	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Soc. Studies	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Foreign Language	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Art	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Music	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Science	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
P. E.	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Other?	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F	A B C D F
Evidence of Poor Conduct	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No

Prepared by the Orange County Superintendent of Schools
EP-6086

ORANGE COUNTY PREDICTION SURVEY

SECTION II. HEALTH INFORMATION. This section is to be completed by the school nurse.

1. PUPIL NUMBER: ☐☐☐☐☐ 2. SEX: ☐☐ Boy Girl

3. BLUE HEALTH CARD ON FILE: Yes____, No____

4. VISION:
   Uncorrected:_____ If corrected:_____
   Date of last correction (approximate, if unknown):_____
   Other visual problem: Yes____, No____
   Eye Dominance: Right____, Left____

5. HEARING:
   Normal____

   If greater than 15 decibal loss, complete audiogram.

	128	256	512	1024	2048	4096	8192
0							
10							
20							
30							
40							
50							
60							
70							
80							

6. TEETH:
   Repaired_____
   Need Repair_____
   Need Orthodontia_____

7. HANDEDNESS:
   Right_____, Left_____, Ambidextrous_____.

8. KNOWN PHYSICAL HANDICAPS:

	Yes	No
Fainting		
Dizziness		
Heart		
Diabetes		
Orthopedic		
Other_____		

	Yes	No
Epilepsy		
Petit		
Grand		

	Yes	No
Allergy		
Asthma		
Eczema		
Hay Fever		

9. EDUCATIONALLY HANDICAPPED:

	Yes	No
Neurological (Diagnosed) Handicap		
Emotionally Disturbed (Diagnosed)		

10. SPEECH PROBLEM:

	Yes	No
Articulation		
Stutter		
Voice		
Received Therapy		

11. FREQUENT ABSENCE FROM SCHOOL: Yes____, No____. HEALTH REASONS? Yes____, No____.

12. NOW ON MEDICATION: Yes____, No____.

13. CHRONIC COMPLAINTS WITHOUT MEDICAL EVIDENCE: Yes____, No____.

14. NURSE'S ESTIMATE OF CHILD'S GENERAL APPEARANCE:

Energy Level	☐ Listless	☐	☐ Normal	☐	☐ Hyperactive
Posture	☐ Poor	☐	☐ Good	☐	☐ Excellent
Nutrition	☐ Thin	☐	☐ Normal	☐	☐ Obese

15. PARENTAL CONCERN AND/OR COOPERATION:

☐ Indifferent ☐ ☐ Helpful ☐ ☐ Diligent

ORANGE COUNTY PREDICTION SURVEY

SECTION III. PUPIL INFORMATION. This section is to be completed on the white form by the 6th grade teacher who has the pupil enrolled in her class, and separately by the principal on the colored form. Adjacent to each trait are two descriptive words which indicate extremes of behavior. The respondents are to check the appropriate box which, in their best professional judgment, most nearly applies to the child in question. For each trait there are five degrees of response though only the extremes are labeled. Only one box is to be checked for each trait. Do not labor over any one item. If a quick, reasonable response cannot be made, go right on to the next item. Do not try to seek out from anyone any unknown items.

PUPIL NUMBER: ☐☐☐☐☐ SEX: ☐☐ Boy Girl

1. What degrees of rapport does the child feel he has with:

His classmates	(1)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His schoolmates	(2)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His teachers	(3)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His parents	(4)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His siblings	(5)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
2. Number of close friends at school:	(6)	☐ ☐ ☐ ☐ ☐	0 1-2 3-4 5-6 Over 6
3. Leadership ability: (negative or positive)	(7)	☐ ☐ ☐ ☐ ☐	Lethargic ... Vigorous
4. Followership:	(8)	☐ ☐ ☐ ☐ ☐	Apathetic ... Enthusiastic
5. Feeling towards authority:	(9)	☐ ☐ ☐ ☐ ☐	Resistive ... Cooperative
6. Assumption of responsibility:	(10)	☐ ☐ ☐ ☐ ☐	Shuns ... Seeks
7. Depth of involvement in: Academic aspect of school	(11)	☐ ☐ ☐ ☐ ☐	Passive ... Keen
Sports or games	(12)	☐ ☐ ☐ ☐ ☐	Passive ... Keen
Student government	(13)	☐ ☐ ☐ ☐ ☐	Passive ... Keen
8. Classroom behavior:	(14)	☐ ☐ ☐ ☐ ☐	Obnoxious ... Admirable

9. Playground behavior: (15)

Obnoxious — Admirable

10. Neatness of work: (16)

Sloppy — Exacting

11. Intelligence: (17)

Dull — Bright

12. Evidence of creative talent in:

Art (18)

Absent — Gifted

Linguistics (19)

Absent — Gifted

Manual Dexterity (20)

Absent — Gifted

13. Grooming and Cleanliness: (21)

Negligent — Fastidious

14. Perception of abstract concepts: (22)

Dense — Discerning

15. Perception of concrete concepts: (23)

Dense — Discerning

16. Self-concept: (24)

Mistaken — Accurate

17. Number of interests: (25)

None — Many

18. Pursuit of known interests: (26)

Lacking — Active

19. Handwriting skill: (27)

Coarse — Fluid

20. Reading ability: (28)

Low — High

21. Physical coordination: (29)

Clumsy — Smooth

22. Athletic ability: (30)

Inept — Skilled

23. Sense of humor: (31)

Distorted — Pleasant

24. Religious participation in Sunday School, Church, or Synagogue (32)

None — Regular

25. Response to highly emotional situations: (33) ☐ ☐ ☐ ☐ ☐
Unpleasant Pleasant

26. Adjustment mechanisms for situations of tension: (34) ☐ ☐ ☐ ☐ ☐
Inappropriate Appropriate

27. Goals and/or aspirations: (35) ☐ ☐ ☐ ☐ ☐
Unrealistic Realistic

28. Performance in relation to potential: (36) ☐ ☐ ☐ ☐ ☐
Minimum Maximum

29. Contacts with police: (37) ☐ ☐ ☐ ☐ ☐
Many None

30. Hobbies: (38) ☐ ☐ ☐ ☐ ☐
None 1 2 3 4 or More

HOME INFORMATION

31. Present father:

Age: (39) ☐ ☐ ☐ ☐ ☐
Under 30 31-38 39-47 48-55 Above 55

Occupation (check one):

(40)

Professional, Sales, Etc.		Manual		Service	
Professional	___	Skilled	___	Private	
Technical	___	Semi-skilled	___	Household	___
Manager	___	Unskilled	___	Other	___
Proprietor	___				
Clerical	___				
Sales	___				
Military	___				

(41) ☐ ☐ ☐
Unemployed Parttime Fulltime

(42) ☐ ☐ ☐
Morn to Eve Eve to Mid Mid to Morn

32. Present mother:

Age: (43) ☐ ☐ ☐ ☐ ☐
Under 30 31-38 39-47 48-55 Above 55

Occupation

(44) Professional, Sales, Etc.

- Professional ____
- Technical ____
- Manager ____
- Proprietor ____
- Clerical ____
- Sales ____
- Military ____

Manual

- Skilled ____
- Semi-skilled ____
- Unskilled ____

Service

- Private Household ____
- Other ____

(45) ☐ Morn to Eve ☐ Eve to Mid ☐ Mid to Morn

(46) ☐ Unemployed ☐ Parttime ☐ Fulltime

33. Marital status of parents:

Real parents (47) ☐ Live Together ☐ Divorced ☐ Separated ☐ Mother Deceased ☐ Father Deceased

Child lives with (48) ☐ Real Parents ☐ Real Mom & Step Dad ☐ Real Dad & Step Mom ☐ Legal Guard ☐ Relatives

☐ Real Mom Only ☐ Real Dad Only ☐ StepDad Only ☐ StepMom Only ☐ Other

34. Number of brothers at home: (49) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

35. Number of sisters at home: (50) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

36. Child's rank in family by birth: (51) ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th or later

37. Number of grandparents at home: (52) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

38. Highest level of education completed:

Present father (53) ☐ 8 or less ☐ 9-11 ☐ 12 ☐ 13-15 ☐ B.A.

Present mother (54) ☐ 8 or less ☐ 9-11 ☐ 12 ☐ 13-15 ☐ B.A.

39. Number of bros. & sisters who quit school prior to high school graduation: (55)
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

40. Economic level: (56)
☐ Low ☐ ☐ ☐ ☐ High

41. Estimate of value of home in child's residential area: (57)
☐ Under $9000 ☐ $9 - 14,000 ☐ $15 - 20,000 ☐ $21 - 25,000 ☐ Above 25,000

42. Type residence in which child now lives: (58)
☐ Trailer ☐ Duplex ☐ Multi-Unit Apt. ☐ Condo-minium ☐ Single Family House

43. Estimate of house for family needs: (59)
☐ Cramped ☐ ☐ ☐ ☐ Spacious

44. Mobility of family: (60)
☐ Transient ☐ ☐ ☐ ☐ Stable

45. Number of times child has changed residence: (61)
☐ 0 ☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7 or More

46. If both parents work - child is cared for by: (62)
☐ Neighbors ☐ Relatives ☐ Hired Help ☐ No One ☐ Other

47. Relationship with grandparents: (63)
☐ Strained ☐ ☐ ☐ ☐ Close

48. Cultural environment of home: (64)
☐ Deprived ☐ ☐ ☐ ☐ Enriched

49. Degree of parent-child participation in:

Family recreational pursuits (65)
☐ None ☐ ☐ ☐ ☐ Extensive

Youth organizations (66)
☐ None ☐ ☐ ☐ ☐ Extensive

Cultural activities (67)
☐ None ☐ ☐ ☐ ☐ Extensive

Church services (68)
☐ None ☐ ☐ ☐ ☐ Extensive

Travel (69)
☐ None ☐ ☐ ☐ ☐ Extensive

Vacations (70)
☐ None ☐ ☐ ☐ ☐ Extensive

50. Estimate of family harmony: (71) ☐ ☐ ☐ ☐ ☐
Discordant — Agreeable

51. Parental disciplinary methods: (72) ☐ ☐ ☐ ☐ ☐
Severe — Mild

52. Grooming and cleanliness: (of parents) (73) ☐ ☐ ☐ ☐ ☐
Negligent — Fastidious

53. Parental attitude towards education: (74) ☐ ☐ ☐ ☐ ☐
Negative — Positive

54. Parental concern for child's achievement: (75) ☐ ☐ ☐ ☐ ☐
Indifferent — Solicitous

55. Quality of scholastic help received at home: (76) ☐ ☐ ☐ ☐ ☐
None — Superior

56. Parent regard for school rules and regulations: (77) ☐ ☐ ☐ ☐ ☐
Resistive — Cooperative

57. Parental influence in child's future: (78) ☐ ☐ ☐ ☐ ☐
Excessive — Wholesome

58. Child's occupational future: (79) ☐ ☐ ☐ ☐ ☐
Unknown — Assured

59. Present respondent's orientation. Empathetic towards: (80) ☐ ☐ ☐ ☐ ☐
Slow Children — Bright Children

60. Years of experience:

As a classroom teacher (81) ☐ ☐ ☐ ☐ ☐
1-4 | 5-9 | 10-14 | 15-20 | Above 20

As a principal (82) ☐ ☐ ☐ ☐ ☐
1-4 | 5-9 | 10-14 | 15-20 | Above 20

Prepared by the Orange County Superintendent of Schools
EP-6097

ORANGE COUNTY PREDICTION SURVEY

SECTION III. PUPIL INFORMATION. This section is to be completed on the white form by the 6th grade teacher who has the pupil enrolled in her class, and separately by the principal on the colored form. Adjacent to each trait are two descriptive words which indicate extremes of behavior. The respondents are to check the appropriate box which, in their best professional judgment, most nearly applies to the child in question. For each trait there are five degrees of response though only the extremes are labeled. Only one box is to be checked for each trait. Do not labor over any one item. If a quick, reasonable response cannot be made, go right on to the next item. Do not try to seek out from anyone any unknown items.

PUPIL NUMBER: ☐☐☐☐☐ SEX: ☐☐ Boy Girl

1. What degrees of rapport does the child feel he has with:

His classmates	(1)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His schoolmates	(2)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His teachers	(3)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His parents	(4)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted
His siblings	(5)	☐ ☐ ☐ ☐ ☐	Rejected ... Accepted

2. Number of close friends at school: (6) ☐ ☐ ☐ ☐ ☐ — 0 | 1-2 | 3-4 | 5-6 | Over 6

3. Leadership ability: (negative or positive) (7) ☐ ☐ ☐ ☐ ☐ — Lethargic ... Vigorous

4. Followership: (8) ☐ ☐ ☐ ☐ ☐ — Apathetic ... Enthusiastic

5. Feeling towards authority: (9) ☐ ☐ ☐ ☐ ☐ — Resistive ... Cooperative

6. Assumption of responsibility: (10) ☐ ☐ ☐ ☐ ☐ — Shuns ... Seeks

7. Depth of involvement in:

Academic aspect of school	(11)	☐ ☐ ☐ ☐ ☐	Passive ... Keen
Sports or games	(12)	☐ ☐ ☐ ☐ ☐	Passive ... Keen
Student government	(13)	☐ ☐ ☐ ☐ ☐	Passive ... Keen

8. Classroom behavior: (14) ☐ ☐ ☐ ☐ ☐ — Obnoxious ... Admirable

9. Playground behavior: (15) ☐ ☐ ☐ ☐ ☐
Obnoxious Admirable

10. Neatness of work: (16) ☐ ☐ ☐ ☐ ☐
Sloppy Exacting

11. Intelligence: (17) ☐ ☐ ☐ ☐ ☐
Dull Bright

12. Evidence of creative talent in:
Art (18) ☐ ☐ ☐ ☐ ☐
Absent Gifted

Linguistics (19) ☐ ☐ ☐ ☐ ☐
Absent Gifted

Manual Dexterity (20) ☐ ☐ ☐ ☐ ☐
Absent Gifted

13. Grooming and Cleanliness: (21) ☐ ☐ ☐ ☐ ☐
Negligent Fastidious

14. Perception of abstract concepts: (22) ☐ ☐ ☐ ☐ ☐
Dense Discerning

15. Perception of concrete concepts: (23) ☐ ☐ ☐ ☐ ☐
Dense Discerning

16. Self-concept: (24) ☐ ☐ ☐ ☐ ☐
Mistaken Accurate

17. Number of interests: (25) ☐ ☐ ☐ ☐ ☐
None Many

18. Pursuit of known interests: (26) ☐ ☐ ☐ ☐ ☐
Lacking Active

19. Handwriting skill: (27) ☐ ☐ ☐ ☐ ☐
Coarse Fluid

20. Reading ability: (28) ☐ ☐ ☐ ☐ ☐
Low High

21. Physical coordination: (29) ☐ ☐ ☐ ☐ ☐
Clumsy Smooth

22. Athletic ability: (30) ☐ ☐ ☐ ☐ ☐
Inept Skilled

23. Sense of humor: (31) ☐ ☐ ☐ ☐ ☐
Distorted Pleasant

24. Religious participation in Sunday School, Church, or Synagogue (32) ☐ ☐ ☐ ☐ ☐
None Regular

25. Response to highly emotional situations: (33) ☐ ☐ ☐ ☐ ☐
Unpleasant Pleasant

26. Adjustment mechanisms for situations of tension: (34) ☐ ☐ ☐ ☐ ☐
Inappropriate Appropriate

27. Goals and/or aspirations: (35) ☐ ☐ ☐ ☐ ☐
Unrealistic Realistic

28. Performance in relation to potential: (36) ☐ ☐ ☐ ☐ ☐
Minimum Maximum

29. Contacts with police: (37) ☐ ☐ ☐ ☐ ☐
Many None

30. Hobbies: (38) ☐ ☐ ☐ ☐ ☐
None 1 2 3 4 or More

HOME INFORMATION

31. Present father:

Age: (39) ☐ ☐ ☐ ☐ ☐
Under 30 31-38 39-47 48-55 Above 55

Occupation (check one):

(40)

Professional, Sales, Etc.		Manual		Service	
Professional	___	Skilled	___	Private	
Technical	___	Semi-skilled	___	Household	___
Manager	___	Unskilled	___	Other	___
Proprietor	___				
Clerical	___				
Sales	___				
Military	___				

(41) ☐ ☐ ☐
Unemployed Parttime Fulltime

(42) ☐ ☐ ☐
Morn to Eve Eve to Mid Mid to Morn

32. Present mother:

Age: (43) ☐ ☐ ☐ ☐ ☐
Under 30 31-38 39-47 48-55 Above 55

Occupation

(44) Professional, Sales, Etc.

Professional ____
Technical ____
Manager ____
Proprietor ____
Clerical ____
Sales ____
Military ____

Manual

Skilled ____
Semi-skilled ____
Unskilled ____

Service

Private
Household ____
Other ____

(45) ☐ Morn to Eve ☐ Eve to Mid ☐ Mid to Morn

(46) ☐ Unemployed ☐ Parttime ☐ Fulltime

33. Marital status of parents:

Real parents

(47) ☐ Live Together ☐ Divorced ☐ Separated ☐ Mother Deceased ☐ Father Deceased

Child lives with

(48) ☐ Real Parents ☐ Real Mom Step Dad ☐ Real Dad Step Mom ☐ Legal Guard ☐ Relatives

☐ Real Mom Only ☐ Real Dad Only ☐ StepDad Only ☐ StepMom Only ☐ Other

34. Number of brothers at home:

(49) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

35. Number of sisters at home:

(50) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

36. Child's rank in family by birth:

(51) ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th or later

37. Number of grandparents at home:

(52) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

38. Highest level of education completed:

Present father

(53) ☐ 8 or less ☐ 9-11 ☐ 12 ☐ 13-15 ☐ B.A.

Present mother

(54) ☐ 8 or less ☐ 9-11 ☐ 12 ☐ 13-15 ☐ B.A.

39. Number of bros. & sisters who quit school prior to high school graduation: (55)

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4

40. Economic level: (56)

☐ Low ☐ ☐ ☐ ☐ High

41. Estimate of value of home in child's residential area: (57)

☐ Under $9000 ☐ $9 - 14,000 ☐ $15 - 20,000 ☐ $21 - 25,000 ☐ Above 25,000

42. Type residence in which child now lives: (58)

☐ Trailer ☐ Duplex ☐ Multi-Unit Apt. ☐ Condo-minium ☐ Single Family House

43. Estimate of house for family needs: (59)

☐ Cramped ☐ ☐ ☐ ☐ Spacious

44. Mobility of family: (60)

☐ Transient ☐ ☐ ☐ ☐ Stable

45. Number of times child has changed residence: (61)

☐ 0 ☐ 1-2 ☐ 3-4 ☐ 5-6 ☐ 7 or More

46. If both parents work - child is cared for by: (62)

☐ Neighbors ☐ Relatives ☐ Hired Help ☐ No One ☐ Other

47. Relationship with grandparents: (63)

☐ Strained ☐ ☐ ☐ ☐ Close

48. Cultural environment of home: (64)

☐ Deprived ☐ ☐ ☐ ☐ Enriched

49. Degree of parent-child participation in:

Family recreational pursuits (65)

☐ None ☐ ☐ ☐ ☐ Extensive

Youth organizations (66)

☐ None ☐ ☐ ☐ ☐ Extensive

Cultural activities (67)

☐ None ☐ ☐ ☐ ☐ Extensive

Church services (68)

☐ None ☐ ☐ ☐ ☐ Extensive

Travel (69)

☐ None ☐ ☐ ☐ ☐ Extensive

Vacations (70)

☐ None ☐ ☐ ☐ ☐ Extensive

50. Estimate of family harmony: (71)

Discordant — Agreeable

51. Parental disciplinary methods: (72)

Severe — Mild

52. Grooming and cleanliness: (of parents) (73)

Negligent — Fastidious

53. Parental attitude towards education: (74)

Negative — Positive

54. Parental concern for child's achievement: (75)

Indifferent — Solicitous

55. Quality of scholastic help received at home: (76)

None — Superior

56. Parent regard for school rules and regulations: (77)

Resistive — Cooperative

57. Parental influence in child's future: (78)

Excessive — Wholesome

58. Child's occupational future: (79)

Unknown — Assured

59. Present respondent's orientation. Empathetic towards: (80)

Slow Children — Bright Children

60. Years of experience:

As a classroom teacher (81)

1-4 | 5-9 | 10-14 | 15-20 | Above 20

As a principal (82)

1-4 | 5-9 | 10-14 | 15-20 | Above 20

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APPENDIX E

REVIEW OF THE LITERATURE

That the reader may quickly be placed in touch with the research relevant to this current Dropout study, findings from related studies are summarized succinctly and categorized. The categories that seem most convenient were (1) family characteristics and (2) school related information. The author and date of the study precede the brief summarizing statement of relevant findings. A bibliography is provided at the end of this review.

The Family of the Dropout: The family is the womb where the dropout is incubated. Cervantes (:37) states, "A law of polarization evidenced in the parent-youth world today is that the dropout is the product, generally speaking, of an inadequate family." The characteristics of the family explored for this study are (1) educational level of parents, (2) occupational level of parents, (3) socio-economic level of the family, (4) family size, and (5) sibling position.

1. Educational level of parents:

    1.1 Boggan (1955) found no significant difference in the educational level of parents of dropouts.

    1.2 Bowman's (1960) efforts indicated that a majority of parents of dropouts were indifferent to school and the relative merit of receiving a high school diploma.

    1.3 Bullock (1967) found in his study with urban

Negro boys that parental involvement with the child was a better predictor of secondary school completion than was the educational level of parents.

1.4 Cannaday (1962) reported that the largest number of dropouts had parents whose educational level was 7 years of formal schooling.

1.5 Cardon (1966) found no significant differences in his study with high ability students but did find positive correlations with family attitude toward school.

1.6 Cervantes (1965) reports the educational level of the vast majority of parents of dropouts is at the eighth grade or below.

1.7 Hoyt (1958) reported that parental lack of education was positively correlated with a student's withdrawal from high school.

1.8 Lloyd (1968) found a positive correlation with dropouts and their father's educational level.

1.9 Peck (1963) in his analysis of the dropout characteristics profiled the father below 8th grade education, unemployed or on welfare, and unskilled for the labor market.

1.10 Stoller (1966) found that dropping out is more related to the parents' education than to their income.

1.11 Williams (1963) reported in his vast study of dropouts in Maryland that 78½% of mothers of dropouts were also dropouts and that 80.3% of fathers of dropouts also dropped out.

1.12 In the Wisconsin study (1965) Lakeland Union High School District dropouts, 54% of the parents of dropouts had less than an eighth grade education and 73% had less than an eleventh grade education.

2. Occupational Level of Parents:

2.1 Cardon (1966) found with high ability students no relationship in the level of parent occupation and dropping out.

2.2 Livingston (1958) found that the occupational level of parents of dropouts was not a significant factor.

2.3 Murk (1960) reported that 70% of the dropouts in his study had parents who as head of household wage earners held unskilled jobs and most of the rest held semi-skilled.

2.4 Peck (1963) discovered the father of the majority of dropouts had less than an eighth grade education or held unskilled jobs or were unemployed.

2.5 Schreiber (1968) profiled the dropout as a student whose father (and/or mother) was em-

ployed in an unskilled or semi-skilled occupation who worked intermittently.

2.6 The Wisconsin study (1965) supported other findings in that most fathers of dropouts work in unskilled or semi-skilled occupations and that there was positive relationship with regularity of fathers' employment and the tendency to drop out.

3. Socio Economic Level of Family:

3.1 Brower (1963) after considering conflicting results of numerous studies concluded that this umbrella factor needed more study of its parts, e.g., money to buy adequate housing, travel, educational materials, etc.

3.2 Deutch (1962) supported that middle-class and upper-class children are more likely to have the importance of school imprinted than are the children from lower-class families.

3.3 Longstreth (1962) concluded that the low educational motivated dropout has positive correlation to low socio-economic life.

3.4 Peck (1963) found that the home conditions of dropouts, as judged by their teachers, were significantly poorer than home conditions of persisters.

3.5 Schreiber (1969) stated that dropout percent-

ages were far higher in lower socio-economic areas than in middle-class areas or above.

3.6 Stoller (1966) reported that their was no correlation in family income and dropouts.

3.7 Tannebaum (1966) indicated that conclusive data were available to support that the vast majority of dropouts came from low socio-economic areas.

3.8 Wisconsin (1965) established through home interviews that poverty and the accompanying cultural traits contributed most heavily to a student's dropping out and that there was a high positive correlation between family income and students who dropped out of school.

4. Family Size:

4.1 Boggan (1955) reported small correlations between the dropout and family size.

4.2 Bowman (1960) in Quincy, Illinois, found that dropouts more frequently (43%) than controls (24%) came from families of 5 children or more and the dropouts less frequently (19%) as compared with controls (39%) came from families with only 1 or 2 children.

4.3 Cervantes (1965) concluded the main factor is that there are usually more children than the parents can readily control.

4.4 Dillon's (1944) studies showed no significant differences in family size in his work with dropouts.

4.5 Liddle (1962) reported, however, that children from small families and first born children left school less frequently.

4.6 The Lakeland Union High School District (1965) study found significantly positive relationships between the number of persons per room in the home and the tendency to drop out.

5. Sibling Position:

5.1 Cook (1956) reported that the oldest and youngest were least likely to leave school prior to graduation.

5.2 Liddle's (1962) study indicated the first born child less frequently drops out of school then do the others.

5.3 Schreiber (1968) concluded that the dropout usually follows the patterns of behavior of the older brothers and sisters.

According to the literature, the family plays a major role in the decision of its children members -- do I finish high school or do I leave prior to graduation? Studies support that parents' educational level is a major factor in predicting early school leavers. Father's occupational level as well as the economic level of the family might be a determiner in the potential dropout's decision. Family size

must be considered and of equal importance, is the number parents can handle adequately. Place in the family appears to be of little importance for the potential school leaver.

THE SCHOOL LIFE OF THE DROPOUT

School Information. Schools have long been satiated with data on students. School personnel have gone to great efforts to make sure it is all recorded properly and accurately. School personnel, however, for reasons of time expenditure, low priority, or money have not capitalized on the many uses of ready information.

As we profile the typical dropout student according to research, it is noted that all the mentioned data are available in each school. The information will be presented under the following categories: (1) Age and Sex; (2) Intelligence (I.Q.); (3) School Achievement; (4) Reasons for Leaving; (5) Extra Curricular Activities; (6) Retention; (7) Age/Grade/Date When Students Drop Out; (8) Attendance; (9) Mobility; and (10) Ethnic Origin.

1. Age and Sex:

   1.1 Graybeal (1964) found more girls than boys dropped out before the age of 16; more boys dropped out than girls after 16 and more boys did not finish school than girls.

   1.2 Kelly (1965) reported 54% boys dropped as compared with 46% girls and most left during the 10th and 11th grade.

1.3 Knudson (1964) reported more boys than girls dropped and the mean age was 16 years.

1.4 Peck (1963) also discovered the mean age to be 16 with more boys than girls leaving before graduation.

1.5 Stoller (1967) found that more boys than girls tended to leave in grades 10 and 11 but more girls left during grade 12.

1.6 Thomas (1954) in his longitudinal study reported more boys left than girls at all grade levels.

1.7 Fresno County Schools (1966) found the same pattern of more boys leaving at all grade levels than girls.

2. Intelligence Quotient:

2.1 Bowman (1960) reported dropouts had a mean lower I.Q. than do non-dropouts.

2.2 Bullock (1967) in studying urban Negro boy dropouts concluded that a low I.Q. was determiner for potential dropouts.

2.3 Graybeal (1964) found 71% of dropouts had an I.Q. between 80 and 109 on the CTMM.

2.4 Hoyt (1958) reported the dropout in Iowa had a lower intelligence quotient than the non-dropout.

2.5 Kelly (1965) found 25% had an I.Q. of less than

90 and 52% had an I.Q. less than 109 on the CTMM.

2.6 Knudson (1964) stated the dropout more often had lower than average ability.

2.7 Peck's study (1963) showed dropouts to have a mean I.Q. below average.

2.8 Fresno County, in 1965, found the mean I.Q. school leavers to be 90.5 on the CTMM and in 1966 follow-up reported 80% were below the mean I.Q. of 100.

3. School Achievement:

3.1 Cannady (1962) concluded if a student was two years behind in achievement he would not finish high school.

3.2 Gallington (1966) stated the greatest predictor of dropout prone students are achievement, reading placement and mathematics placement.

3.3 Graybeal (1964) found in his study 89% of males and 66% of females who dropped had failed at least one subject.

3.4 Hoyt (1958) reported that school underachievement is a definite factor in predicting who will not finish school.

3.5 Knudson (1964) reported in his study of the Minnesota and Texas dropouts that underachievement and repeated failures was a major factor

in students quitting school.

3.6 Peck (1963) found dropouts to have a statistically significant lower scholastic aptitude with math and reading well below average.

3.7 Ruff (1964) in studying the characteristics of the early school leavers stated that the vast majority are academic dropouts before they physically dropout.

3.8 Stoller (1966) reported a positive correlation exists between dropout rates and the tendency to be below modal grade. In 1967 he found the areas of critical performance were primarily English and Math, with more failing grades accumulated in English with Math and Social Studies second and third.

3.9 Tannenbaum (1966) claims achievement is a more revealing factor than I.Q. when predicting whether a student will or will not drop out of school.

3.10 Wages (1969) in studying Mexican American dropouts concluded that failure more than any other factor is the major contributor to students leaving school.

3.11 Williams (1963) in his analysis of Maryland dropouts found 47½% were failing 3 or more subjects when they physically left.

3.12 Fresno County Schools (1966-1967) reported that 75% of dropouts were below grade level in reading and 70% were low grade level in math.

4. Reasons For Leaving:

4.1 Bullock (1967) concluded the reasons could be put into social and cultural context.

4.2 Cannady (1962) reported the majority left because of (1) dislike of school, (2) work, and (3) school failures.

4.3 Graybeal (1964) indicated school counselors perceptions of reasons for leaving were (1) school subject failure, (2) discipline, (3) parent indifference and (4) poor attendance.

4.4 Kelly's (1967) analysis showed the main reason for quitting school to be lack of interest followed by poor attendance, school failure and work with 67% self initiating their leaving and 18% school initiated drops.

4.5 Peck (1963) found 23% left because of lack of interest and 15.3% due to subject failures.

4.6 Wages (1969) found among Mexican American dropouts in Texas that school failures and lack of money were the foremost reasons for leaving.

4.7 Williams (1963) concluded the major reason

was lack of interest followed closely by school failures.

5. Extra Curricular Activities:

5.1 Cannaday (1962) reported a positive correlation between dropouts and being in no extra curricular activities at school.

5.2 Grinder (1967) found positive correlations between the dropout not involved in extra curricular activities and (1) low achievers, (2) low occupational aspirations and (3) father's occupational level.

5.3 Hoyt (1958) found very few dropouts who had participated in any extra curricular programs.

5.4 Knudson's (1964) analysis confirmed that the dropout seldom is involved in school-related activities.

5.5 Thomas (1954) reported that not one student who dropped before completing the third year had engaged in even one school-related activity compared with 89% of those who stayed.

5.6 Fresno County Schools (1966) found only 20% had participated at all in extra curricular activities.

6. Retention:

6.1 Cannaday (1962) concluded that if a student is two years behind by the 7th grade he is unlikely to finish the 10th grade and that if

he is three years behind he is not likely to enroll in the 9th grade.

6.2 Graybeal (1964) reported findings that 57% of the male dropouts and 40% of the female dropouts had been retained at least once.

6.3 Kelly's (1965) findings showed 80% were at normal grade level when they left, 12% were over age and 8% were younger.

6.4 Peck (1963) found in his study the majority of the dropouts had been retained one or more years.

7. Date When Students Drop Out:

7.1 Graybeal (1964) found the largest number in his study left after 8th grade and at age 16.

7.2 Kelly (1965) reported that the vast majority left school during grades 10 and 11 with those having a lower I.Q. leaving earlier than those with a higher I.Q. He also found that most left in June to September (no-shows) and during February and March, i.e., the first two months of each semester.

7.3 Peck (1963) reported similar findings in that September (no-shows) and January (semester break) were the peak dropout times.

7.4 Fresno County Schools (1966) indicated that the dropout usually left during the 11th grade.

8. Attendance:

8.1 Knudson (1964) found lack of regular attendance to be a prime predictor for dropping out of school.

8.2 Peck (1963) concluded that poor attendance patterns could be used to locate potential dropouts and that he found positive correlations between poor attendance and dropping out of school.

8.3 Fresno County Schools (1966) reported the average number of days missed during the semester prior to the student leaving school was 23 for boys and 17 for girls and that 75% of all dropouts in the study had an erratic attendance pattern.

9. Mobility:

9.1 Cardon (1966) found no correlation in students changing schools and dropping out.

9.2 Fresno County Schools (1966) concluded changing schools was a major determinor in the student leaving before graduation.

10. Ethnic Origin:

10.1 Kelly (1966) found that ethnic origin was not a factor in dropping out of school.

10.2 Thomas (1954) concluded that ethnic origin was not correlated with leaving or staying in school.

Summary Of The Literature: The characteristics of students who have dropped out of school before graduation have been suggested by the many studies available in the literature. A review of the literature profile of the familial characteristics of the early school leaver, shows (1) the father had not completed his secondary education; (2) the parents were employed in unskilled or semi-skilled occupations and worked intermittently; (3) the family has low socio-economic resources; (4) the family probably has more than 3 children; and (5) the dropout is seldom the first or last child.

School information in research studies profiles the typical dropout to be: (1) 16 years old; (2) leaves school in the summer or at the start of the second semester; (3) is male; (4) is of average intelligence; (5) is underachieving especially in Reading, English and Math; (6) gives as the main reason for his decision to leave to be a lack of interest; (7) is not involved in any school oriented extra curricular activities; (8) probably has been retained at least one year in school; and (9) has a record of poor attendance.

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